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# What is causing the rapid reversal of the social gradient of obesity among Egyptian women?

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<http://www.iussp.org/Activities/hequity/reportlondon09.pdf>

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## Background

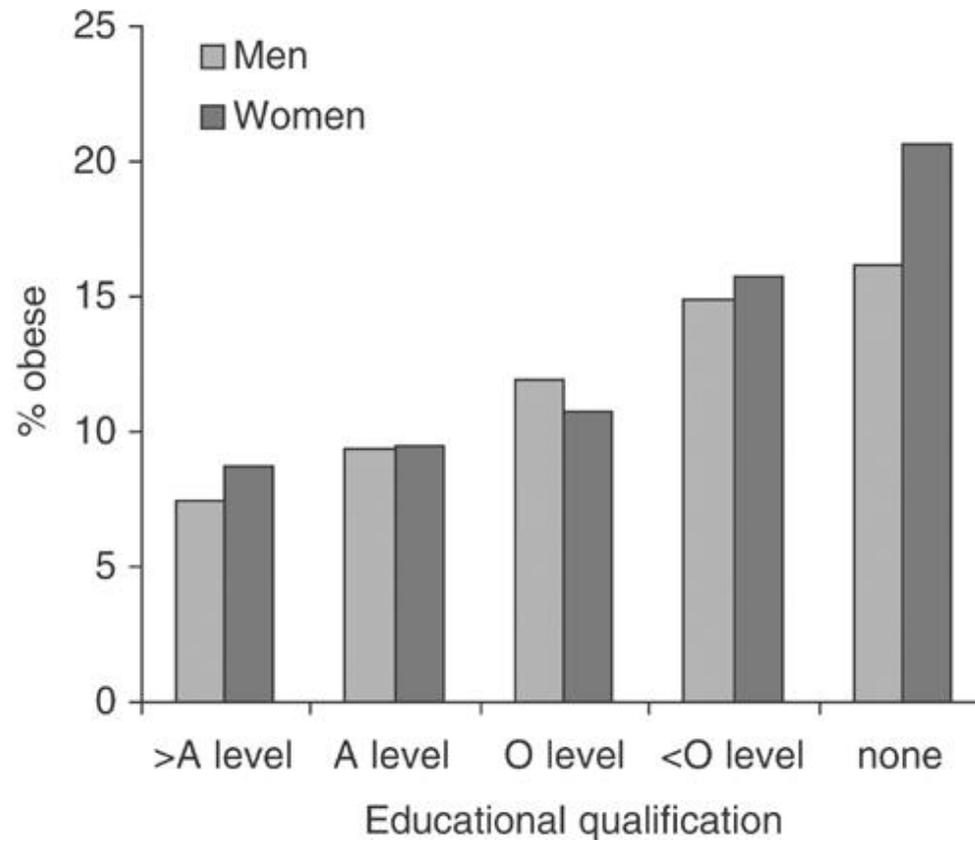
- North Africa and the Middle East contribute a **disproportionate amount** of the global burden of non-communicable disease.
- Egypt:
  - GNP/capita: ~\$1,300<sup>1</sup>
  - Female obesity: 46% (UK 23%; USA 35%)<sup>2</sup>

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<sup>1</sup> World Bank <http://www.worldbank.org/depweb/english/modules/basicdata/datamidebasic.html>

<sup>2</sup> WHO <http://apps.who.int/bmi/index.jsp>

# Social distribution

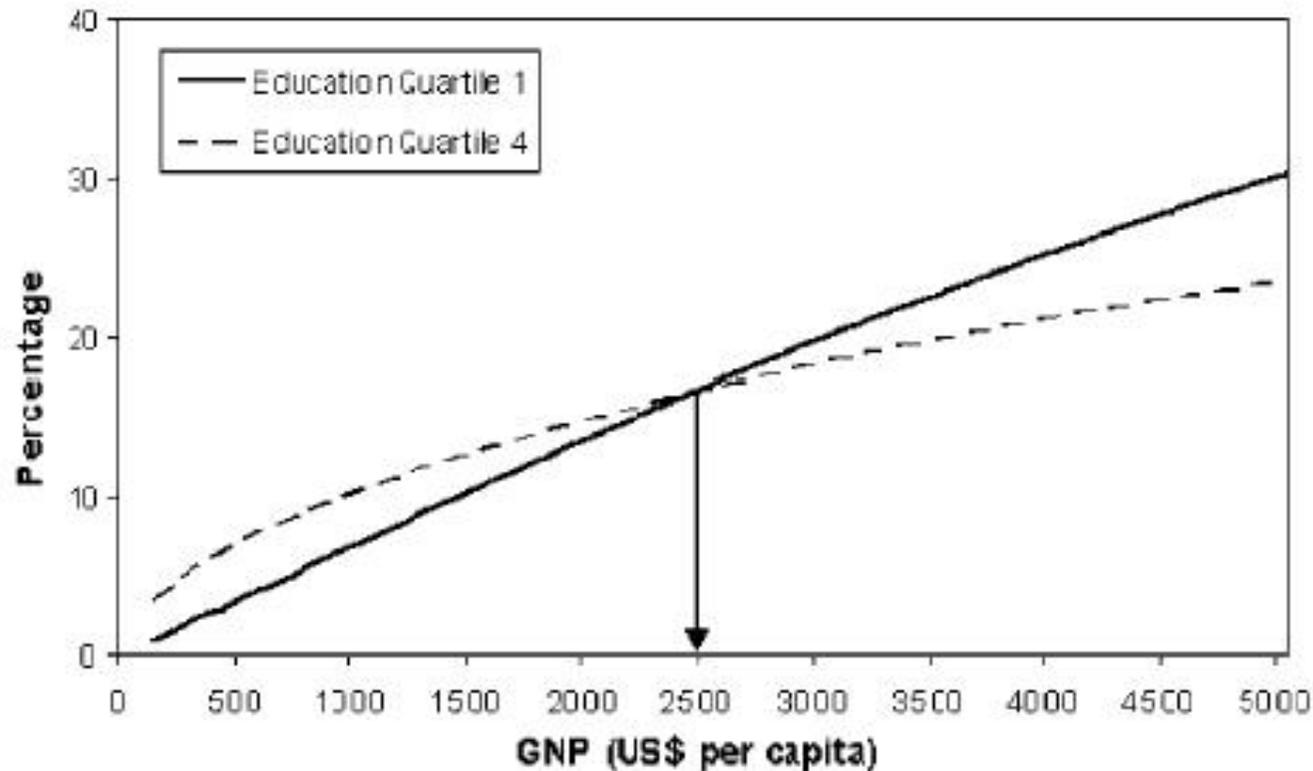


In low- income countries:  
obesity more common  
among the rich.

Transition settings...

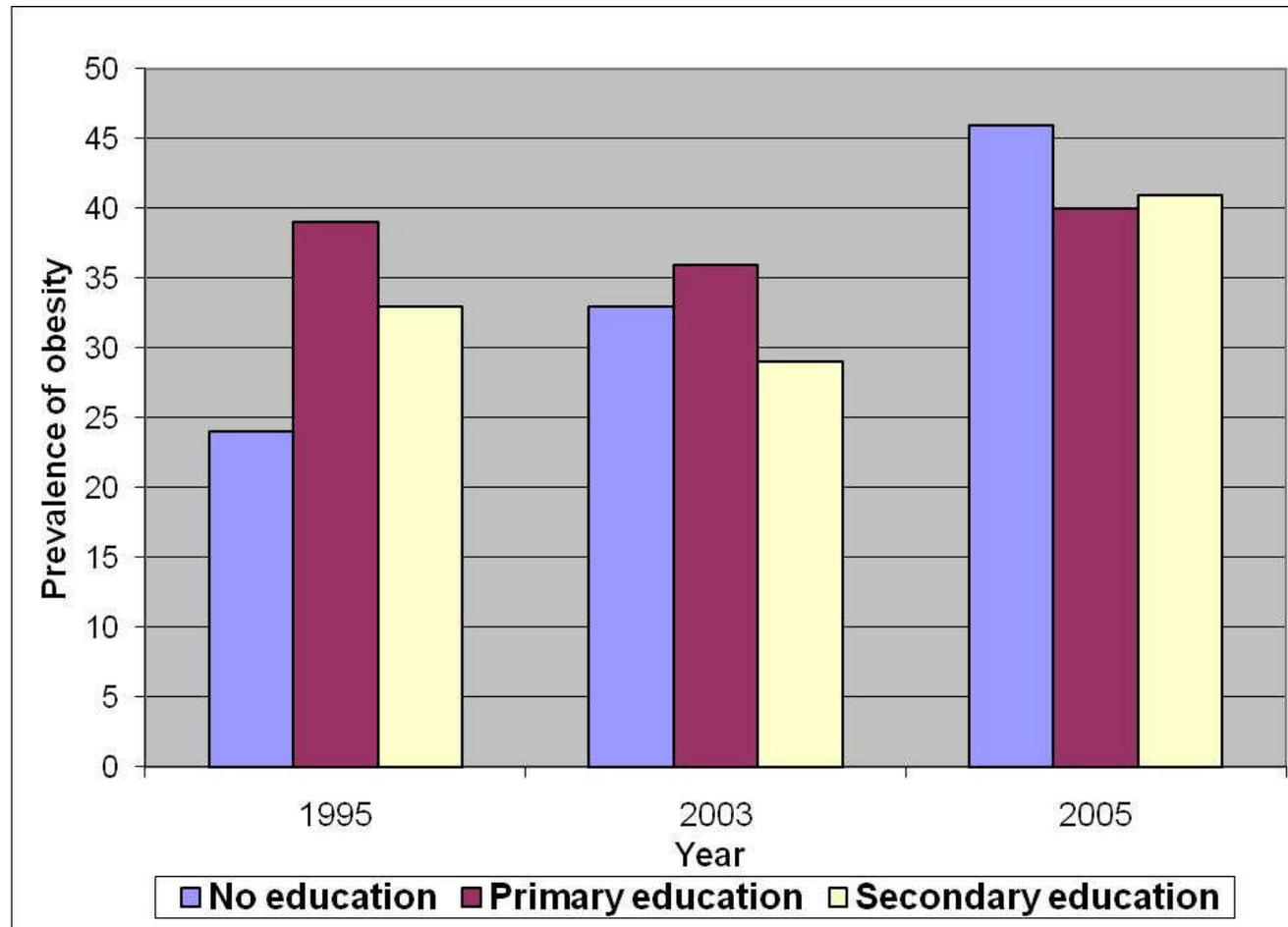
Power et al, Int J Obesity 2003  
Data from 1958 British Cohort.

## Change in distribution of obesity at \$2500 GNP/capita: increased health inequity



The predicted prevalence of women's obesity among the lower and higher SES groups at different country GNP levels. (Monteiro et al Int J Obesity 2004)

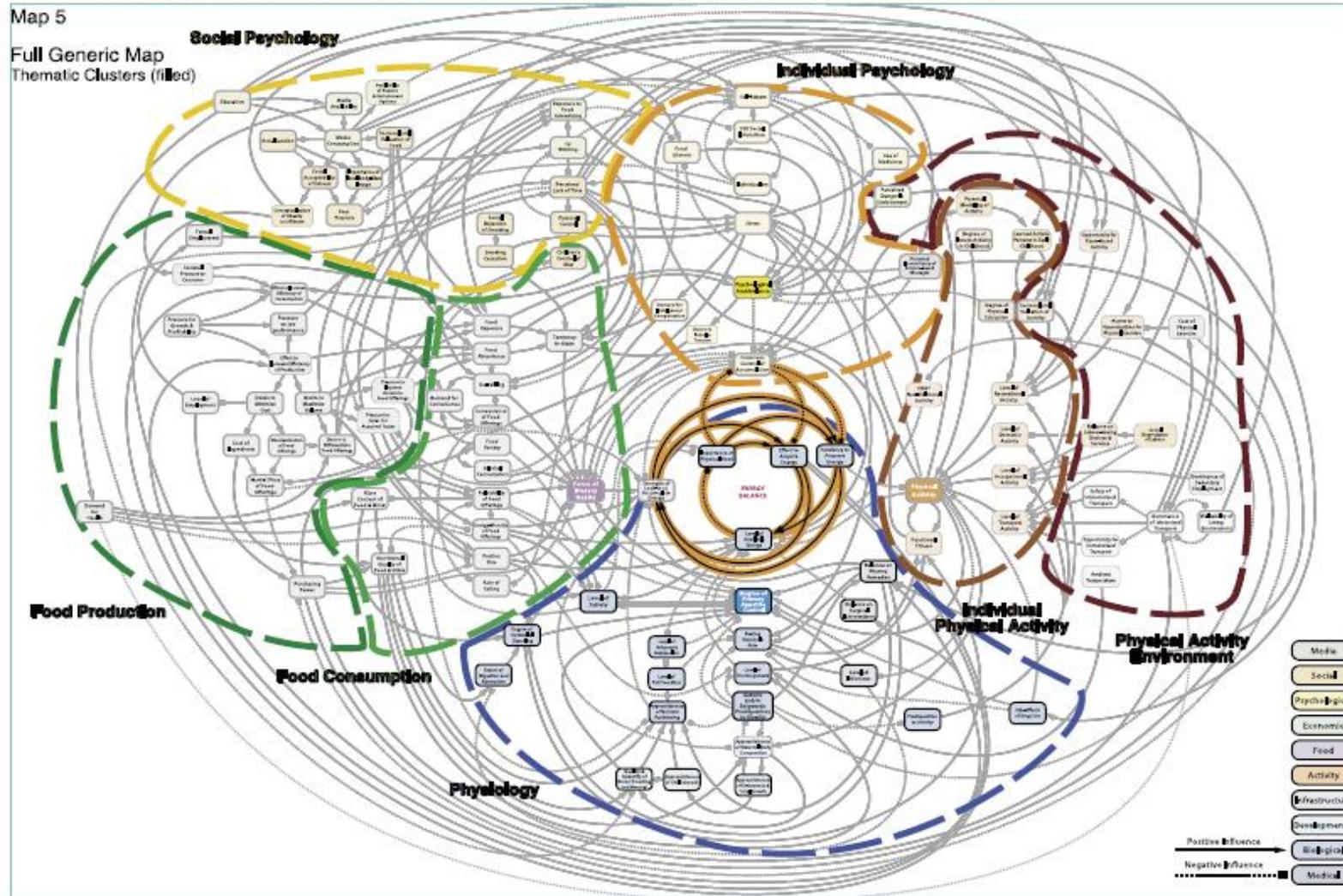
## Social gradient in Egypt: reversal in urban areas



Obesity prevalence among urban mothers (18-49yrs) by education and year (Egypt DHS, 1995-2005). Aitsi-Selmi (doctoral thesis, in progress)

# Causes of obesity: a complex system (Tackling Obesities: Foresight report, 2007)

Figure 5.2: The full obesity system map with thematic clusters (see main text 5.1.2 for discussion)<sup>17,18</sup> Variables are represented by boxes, positive causal relationships are represented by solid arrows and negative relationships by dotted lines. The central engine is highlighted in orange at the centre of the map.



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## Causes of obesity

- Environmental (dietary; built environment)
- Behavioural/individual level (food preferences; income, education, etc)
- Genetic
- Pre-birth (intrauterine environment – Barker hypothesis)

### Causes of social gradient:

- Status symbol, cultural preference for plumpness
  - Better knowledge of healthy diets, going to gym and thinness as status symbols
  - But what about the poor?
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## Income effects among the poor

- Established market economies: review<sup>1</sup>
  - Association between socioeconomic status and diet quality.
- China: longitudinal study<sup>2</sup>
  - rapid income growth adversely affected dietary quality
  - effect was greater among the poor
  - increased income was used to purchase greater quantities of energy-dense foods

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1 Darmon & Drewnowski, Am Soc Nutr 2008

2 Du et al, Soc Sci & Med 2004; Guo et al, Econ Devt & Cult Change 2000

## Income effects among the poor

- Egypt
  - Price elasticities of sugar, dairy products and oil & fats are higher than those for cereals, beans and vegetables<sup>1</sup>
  - More markedly so in rural areas<sup>1</sup>
  - Egypt's consumption of 3,335 calories per capita per day is extraordinarily high (similar to UK) Why? Subsidy system, food culture, effect of recent income increases? Further research needed.

Daoud, S. An Analysis of Food Consumption in Egypt. Thesis. Kiel, 2005

[http://deposit.ddb.de/cgi-bin/dokserv?idn=975462458&dok\\_var=d1&dok\\_ext=pdf&filename=975462458.pdf](http://deposit.ddb.de/cgi-bin/dokserv?idn=975462458&dok_var=d1&dok_ext=pdf&filename=975462458.pdf)

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## So what? Increasing inequity & double burden of poverty

- Co-existence of over- and undernutrition
  - Egypt: 13% of households had an overweight/obese mother and a stunted child under 5yrs (EDHS 2005)
  - Future high risk of diabetes, heart disease, cancer due to obesity + stunting effects
  - Policies target undernutrition and omit rising problem of obesity and related chronic diseases
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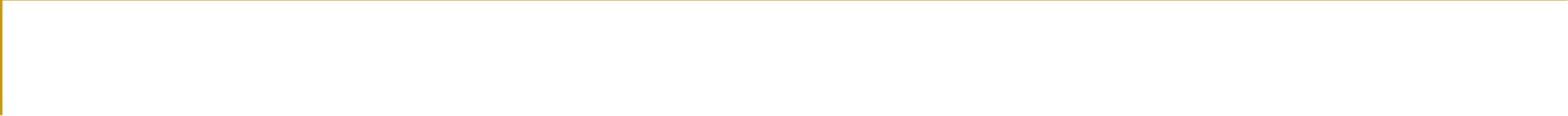
# Financial incentives: an economic instrument for health behaviour change?

- Conditional Cash Transfer Scheme
    - Poverty alleviation
    - Regular cash transfer in exchange for meeting certain requirements (e.g. Childhood immunisation, school attendance)
  - Evidence from Mexico that increased cash may lead to obesity in adults
  - Condition: attend education and information sessions on nutrition, incorporate awareness of obesity/chronic diseases
  - Measure effect on diet and Body Mass Index in women
  - Ensure these poverty alleviation programmes are designed for dual burden settings and not detrimental to health
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## Summary

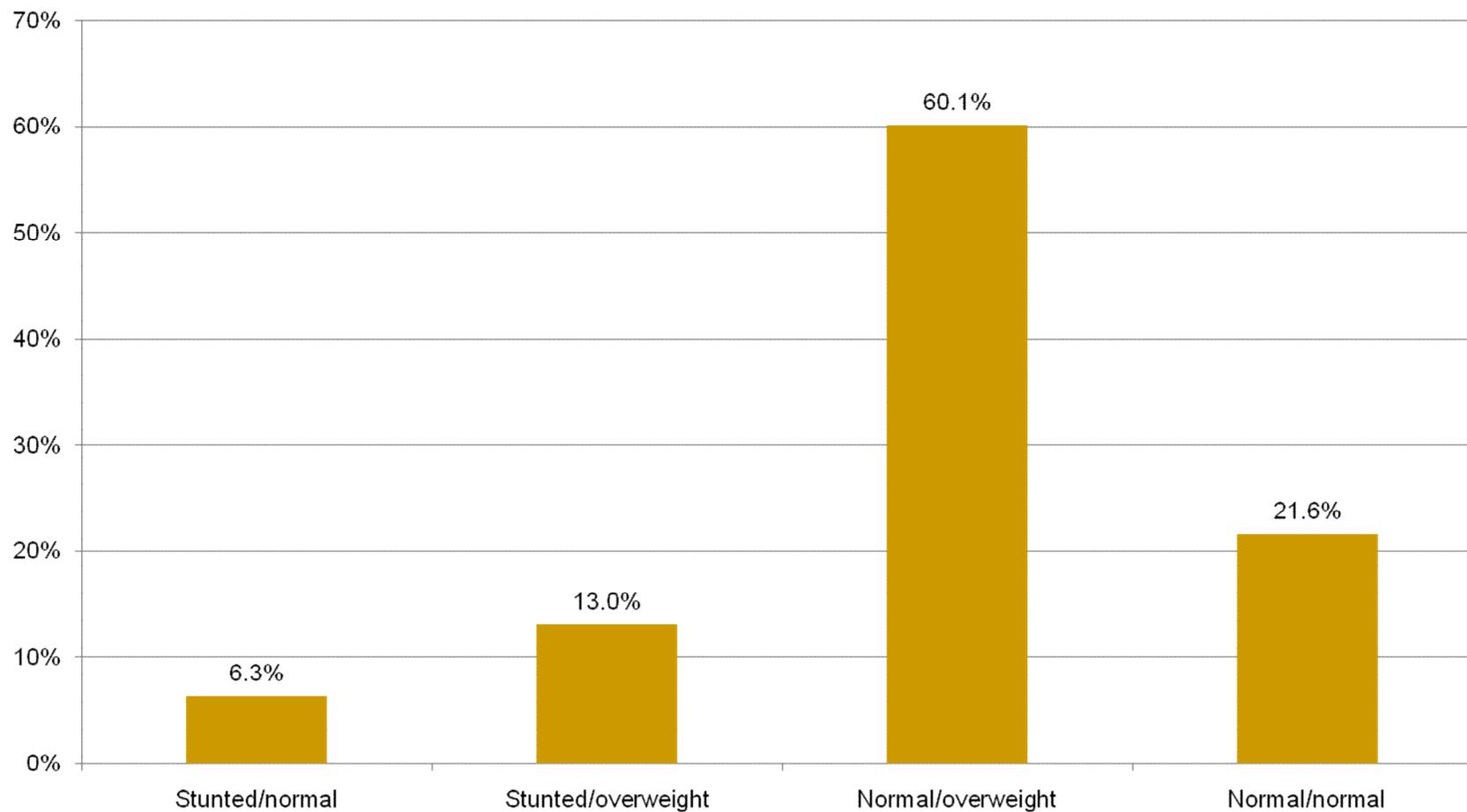
- Rising levels of obesity
  - Affects the poor
  - Obesity and undernutrition can coexist
  - Role of rapid increases in income
  - Appropriate policies
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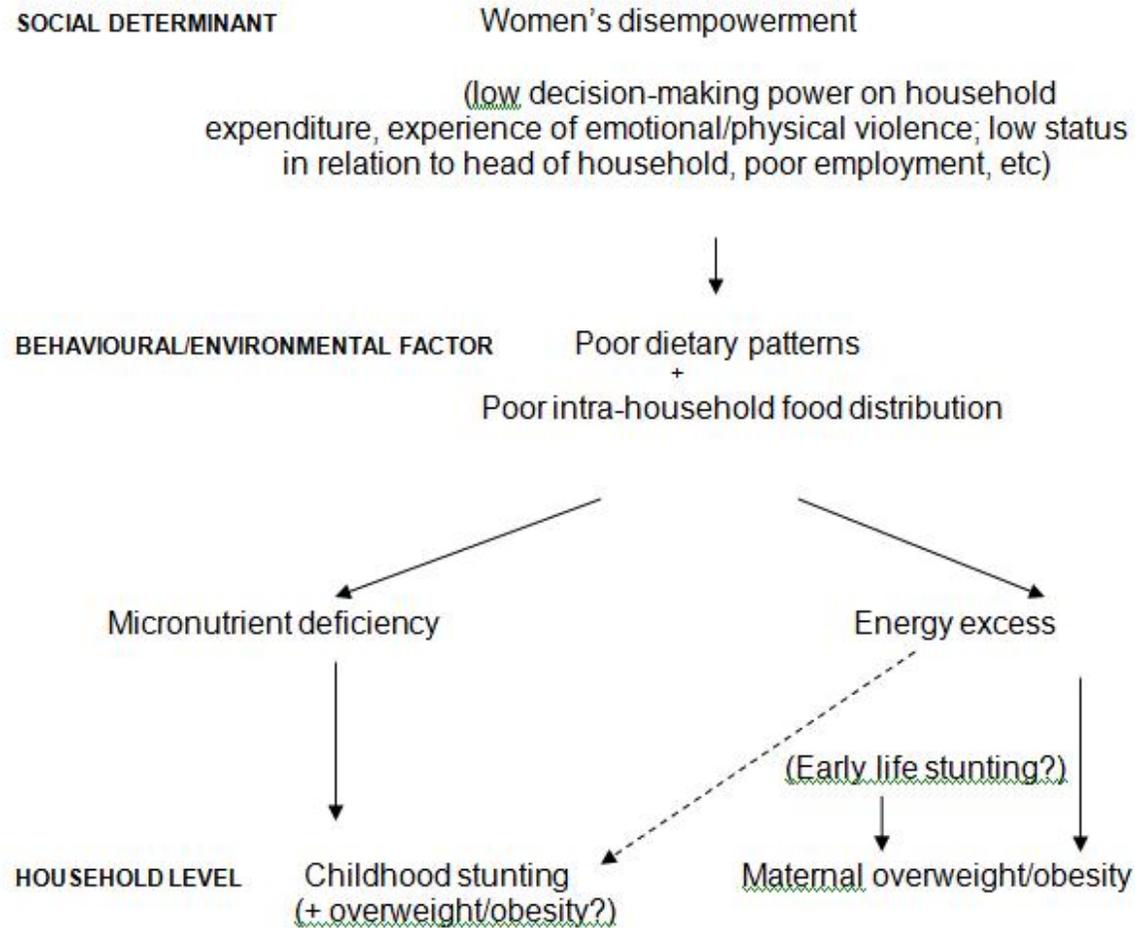
THANK YOU



## Household composition: child/mother pair types (EDHS 2005)



# Understanding the genesis of obesity through the dual burden of malnutrition



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## How can health inequities related to obesity among women be addressed?

- “public actions to prevent both obesity and obesity-related health inequities in the developing world should include population education strategies not restricted to the elite on the determinants and consequences of obesity as well as changes in the physical, economic, and socio-cultural environment that make healthier choices concerning diet and physical activity behaviours feasible for all social classes”.
  - Economic instruments at individual level?
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# Acknowledgements

- SRC
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