Obesity & Socio-economic groups in Europe: Evidence & implications for action

The Expert Group on Social Determinants and Health Inequalities
European Commission, DG Health & Consumer Protection,
Public Health & Risk Assessment, Unit C4 - Health Determinants

7 May 2007

Aileen Robertson
Public Health Nutritionist
Suhr’s University College
Denmark
Main collaborators

Cecile Knai
European Centre on Health of Societies in Transition
London School of Hygiene and Tropical Medicine
Keppel Street, London,

Dr Tim Lobstein
Science and Technology Policy Research
University of Sussex
Brighton
Aim

- Describe and evaluate the prevalence and trends of obesity in different SEG.
- Examine the health and economic consequences of the burden of obesity.
- Describe critical stages through the life cycle along with key risk factors contributing to obesity.
- Present information to assist countries and the EU to develop public health policies and interventions for the prevention of obesity within SEG.
- Identify gaps in knowledge that need further research.
Methods

- Studies, scientific reviews, governmental reports and documents, unpublished reports, and other publications. Several databases (including Pubmed, CAB Abstracts, the Cochrane Library, Web of Knowledge) were used to identify relevant published literature. The bibliographies of retrieved documents were searched to identify additional studies.
- The database search was complemented by an extensive search for grey literature.
- In addition two databases were analysed for information on the extent to which countries are addressing inequalities and obesity.
Databases with national policy documents

• National Action Plans against Poverty and Social Exclusion (NAPS) generated by the European Commission’s directorate for Employment, Social Affairs and Equal Opportunities;

• the European Health Inequalities Portal, a project funded by the European Commission’s directorate for Health and Consumer Protection.

• Key words: obesity, food and nutrition or physical activity patterns.
NAPS and Health Policies

- All 27 Member States (MS) had a NAPS
- 17 MS represented on Health Inequalities Portal
- 5 Member States cited obesity in relation to inequalities in both NAPS & HI
- There is a need for more awareness within MS concerning links with obesity & SEG
Specific recommendation

• Special Issue of National Action Plans against Poverty and Social Exclusion (NAPS) Initiative dedicated to addressing obesity and inequalities in order to facilitate the development of an effective response both nationally and at EU level.

• How?
Relationship between levels of adult obesity and socio-economic groups in Europe

Martinez et al 1999
Differences in adult obesity prevalence between highest and lowest socioeconomic group by country

Cavelaars et al 1997
Denmark

Obesity prevalence by years of schooling

Men

Prevalence (%)


SUSY 2006 – least education have shown most rapid rise for BOTH men and women
Estonia 2005: women's reproductive health

Estonia: female overweight prevalence by age and income level (1-4)

% women in lower income groups is double in 25-34 years
Greece: gradient for women's reproductive health is steep

Greece: obesity and SES in women

Manios et al 2005
Finland – women's reproductive health

Finland: women's mean BMI by education status, 1982-2002

No differences in men
### Soziale Schicht und starkes Übergewicht bei Erwachsenen

<table>
<thead>
<tr>
<th>Soziale Schicht(^c)</th>
<th>Starkes Übergewicht(^a)</th>
<th>Anteil (in %)</th>
<th>Odds Ratio(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Männer</td>
<td>Frauen</td>
<td>Männer</td>
</tr>
<tr>
<td>1 (obere)</td>
<td>11,4</td>
<td>8,1</td>
<td>1,00</td>
</tr>
<tr>
<td>2</td>
<td>14,8</td>
<td>12,4</td>
<td>1,35</td>
</tr>
<tr>
<td>3</td>
<td>19,4</td>
<td>16,1</td>
<td>1,82*</td>
</tr>
<tr>
<td>4</td>
<td>21,8</td>
<td>26,4</td>
<td>1,98***</td>
</tr>
<tr>
<td>5 (untere)</td>
<td>25,0</td>
<td>31,9</td>
<td>2,26***</td>
</tr>
</tbody>
</table>

\(^a\) p < 0,05; \(^b\) p < 0,001; \(^c\) p < 0,0001

\(^a\) Body Mass Index (Körpergewicht/Körpergröße) ≥ 30

\(^b\) Vergleichsgruppe: obere soziale Schicht; konnolierte Variable: Alter

\(^c\) Index aus Schulbildung, beruflicher Stellung und Einkommen (Unterteilung in Quintile)

Stichprobe: 46 518 Männer und Frauen (25–69 Jahre, Deutsche, alte Bundesländer)


*Quelle*: Helmert, U. (2003a)
Portugal – steep gradient in women

Portugal: obesity prevalence trends by gender and educational level

<table>
<thead>
<tr>
<th>Prevalence (%)</th>
<th>1995-6</th>
<th>1998-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>men</td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- under 6 yrs school
- 6 - 12 yrs school
- over 12 yrs school
Norway: Obesity prevalence among different ethnic groups

Norway, Turkey, Iran, Pakistan, Sri Lanka, Vietnam

Prevalence (%)
Risk model for obese women of reproductive age within lower SEG

High gestational weight gain

High BMI before conception → High BMI at delivery

Events at delivery

Ever attempts to breastfeed → Early lactation failure → Retention of fat store after pregnancy

Biological, medical, mechanical, psychosocial and socio-demographic factors

Eating habits and physical activity

Source: adapted from Prof K.M. Rasmussen, Cornell
Conclusions

- Women (of reproductive age) within low SEG have the highest prevalence of obesity
- No weight loss/control during pregnancy is recommended
- IOM recommendations appear to overestimate the optimal gestational weight gain
- European recommendations required
Cost

Recommendation - more information needed on Burden of Disease (DALYS) related to obesity within SEG

Please supply additional cost if there are additional data in EU Member States that should be included
MECHANISMS OF THE ASSOCIATION BETWEEN OBESITY & SEG

1. Socioeconomic
   - Education
   - Employment
   - Income
   - Social isolation
   - Social cohesion
   - Welfare benefits
   - Stress management

2. Food and nutrition
   - Cost/price
   - Food preparation skills
   - Marketing
   - Taste and appearance
   - Convenience
   - Meals outside the home / catering
   - Availability / access (retail)

3. Physically active lifestyle
   - Social environment
   - Access to green spaces
   - Urban design
   - Transport system
   - Land use patterns
   - Leisure time activities
   - School and workplace
   - Kindergartens play areas

4. Psychological, cultural, and emotional
   - Culture
   - Religious and moral beliefs
   - Family influences
   - Self esteem
   - Peer pressure
   - Bullying and discrimination at school and in the workplace
   - Advertising and role models
   - Health beliefs

5. Physiological
   - Energy expenditure
   - Appetite
   - Medical conditions
   - Genetic factors

6. Knowledge
   - Nutrition education through the life course
   - Physical activity education
   - Labelling
   - Health and nutrition claims

INDIVIDUAL CHOICE

PHYSICAL AND MENTAL HEALTH STATUS

OBESITY
Food expenditure in low income households

• When money is short food purchases are reduced to the minimum
• Food that satisfies hunger is least expensive & likely to be rich in energy but poor in nutrients
• This can encourage unhealthy dietary choices at an early age
• Recommendation - An EU wide programme to consider the minimum income levels to ensure families can afford a healthy diet
Hungary & Poland

• 11% women of reproductive age (18-34 yr) are underweight.
• ? Smoking habits
• Data by SEG?
Lifecycle: coexistence of under- and over nutrition in SEG

- **Higher maternal mortality**
- **Inadequate food, health & care**
- **Reduced mental capacity**
- **Inadequate growth**
- **Impaired mental development**
- **Higher mortality rate**
- **Weight gain**
- **Visceral obesity, H/T, Diabetes**
- **Adult chronic diseases**
- **Early Weaning (Taste)**
- **Frequent infections**
- **Inadequate food, health & care**
- **Reduced mental capacity**
- **Inadequate food, health & care**
- **Inadequate growth**
- **Inadequate foetal nutrition**
- **Reduced capacity to care for baby**
- **Inadequate food, health & care**
- **Adolescent Stunted**
- **Child Stunted**
- **Baby LOW Birth Weight**
- **Rapid Weight gain**
- **Woman Malnourished**
- **Pregnancy Low Weight Gain**
- **Elderly Malnourished**

Adapted from James et al. SCN Millennium Rep. Food & Nutrition Bulletin, 2000, 21, 3S.
Breastfeeding recorded at 6-8 wks by maternal age and SES

<table>
<thead>
<tr>
<th>Maternal age group</th>
<th>Quintile 1</th>
<th>Quintile 2</th>
<th>Quintile 3</th>
<th>Quintile 4</th>
<th>Quintile 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Risk model for infants of obese women with lower SES

- High birth weight - Risk of obesity
- Low birth weight - Risk of stunting

Failed attempts to improve feeding practices

Early cessation of breastfeeding and too early introduction of solid food

Excessive infant growth or Abdominal obesity

Biological, psychosocial and socio-demographic factors

Overweight infant

Overweight young child

Formation of taste preferences

Primary health care and welfare benefits

Eating habits and physical activity
Children living in relative poverty UNICEF 2005
Child obesity and relative poverty

% children obese
% children in relative poverty
(in families with income below 50% of national median)

Source WHO and IOTF (r=0.74, p<0.001)
Health Survey for England 2003

Child obesity and income level

- Highest
- 2nd
- 3rd
- 4th
- Lowest

Prevalence (%)
France: Sharp gradient in adolescents

France: overweight and obese adolescents by parents' employment status

De Peretti et al 2004
School children


• Dietary intakes less than Lower Reference Nutrient Intake and RNIs Nelson M. Proc Nutr Soc 2000

• 10 out of 13 studies showed an increase in intelligence & IQ in children who were the most poorly nourished to start with. Benton D. Micronutrient supplementation and intelligence of children. Neuroscience and Biobehavioural Reviews 2001. 25.4:297-309

Monitoring and surveillance

- Monitoring of children’s weight at school
- Obesity indicators of inequalities: birth wt; breastfeeding; dental health; fruit & veg intake; physical activity; obesity prevalence by gender, age & SEG; teenage pregnancies;
- Monitoring birth weight – not just low birth weight but also high birth weight in relation to SEG
Setting targets – an example

CHD Mortality (under 75 years)

Target is to reduce the under 75 coronary heart disease mortality rate (per 100,000) in the most deprived areas by 27.1% from 112.0 in 2003 to 81.7 in 2008. An average annual reduction of -6.1% is required to meet this target. During the first 2 yr the rate has decreased by 12.7% (from 112.0 in 2003 to 97.8 in 2005). If this continues the 2008 target will be met. Mortality rates in the most affluent areas also fell, but not as much as in the most deprived areas. The inequality ratio therefore decreased and so the inequality gap narrowed.
Interventions

• Health education likely to be misunderstood or misapplied therefore greater emphasis on providing healthy choices

• Health education has failed to acknowledge the cultural, economic and environmental influences that shape choices
Policies

• Institutional reforms within health service e.g. more focus on ante-natal support within SEG & BFHI
• General fiscal measures e.g. VAT, welfare
• Marketing restrictions e.g. precedent “Code for breast-milk substitutes”
• Educational initiatives e.g. school policies
• Physical activity policies
• Research – especially social research in SEG
Local interventions supported at national & international level

• School policy – teacher training, school meals & curriculum standards; marketing

• Breastfeeding & infant feeding – training for midwives, BFHI, marketing restrictions.

• Infants and young children e.g. Sure Start

• Pregnancy as an entry point – maternity leave, welfare benefits, recommendations for weight gain & physical activity during pregnancy – ”caution - do not to blame the victim”
Pregnancy & SEG

- National monitoring to include SEG & BMI
- Optimal weight before pregnancy
- Optimal weight gain during pregnancy
- Retension of fat stores (breastfeeding)
- Low SES groups tended to rely more on their social environment & learn from their peers
Adults

• Participatory approaches seem to work best where the disadvantaged take part in the planning and delivery of interventions
• Disadvantaged are more reliant on public transport & most vulnerable to out-of-town shopping centres.
• Recommendation – analysis where food retail outlets are sited
Key gaps in knowledge

- Quantitative & qualitative surveys in low income areas to find out the degree to which obese children are nutrient deficient & what underpins their eating patterns
- Monitoring of national birth weight – not just low birth weight but also high birth weight by SEG
- Monitoring of breastfeeding rates & how to improve infant feeding practices (e.g. Taste)
- EU gestational weight gain & physical activity recommendations during pregnancy
Please send information to

air@suhrs.dk

Aileen Robertson
SUHRS UNIVERSITY COLLEGE
DENMARK
This paper was produced for a meeting organized by Health & Consumer Protection DG and represents the views of its author on the subject. These views have not been adopted or in any way approved by the Commission and should not be relied upon as a statement of the Commission’s or Health & Consumer Protection DG’s views. The European Commission does not guarantee the accuracy of the data included in this paper, nor does it accept responsibility for any use made thereof.