Development: physical, cognitive and social

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What is Child Development?

Child development refers to the ordered emergence of interdependent skills of sensori-motor, cognitive-language, and social-emotional functioning. This emergence depends on and is interlinked with the child’s good nutrition and health. As A World Fit for Children states, “…children should be physically healthy, mentally alert, emotionally secure, socially competent and ready to learn.”

UNICEF 2006
Developmental perspective

Three domains of human development:

- Physical
- Cognitive
- Social and emotional
Social determinants for child health and development

**Structural determinants**

- Socioeconomic position
- Social class
- Gender
- Ethnicity
- Education
- Occupation
- Income

**Intermediary determinants**

- **Material** - including housing quality, overcrowding, air pollution
- **Behavioural** – including home environment and parenting activities (reading and telling stories), family routines (sleeping and meal times, screen based media use), physical activity
- **Psychosocial** – including parent mental health, parent-child interactions, discipline strategies, parental warmth and hostility

**Child health and development**
BMI trajectories in childhood

Kelly et al Pediatrics 2016
Obesity Age 5

Girls Age 5 (n=5875)

Boys Age 5 (n=6090)
Longitudinal Verbal Profiles

![Graph showing mean BAS scores across different age groups (3, 5, 7, 9, 11 years) for three categories: Average (74.9%), High (19.5%), Low (5.6%). The graph illustrates the trend of verbal profiles over age.

Zilanawala et al, Eur J Pub Health 2016
Inequality starts early

(Hart & Risley, 1995)
Verbal ability at ages 3 & 5 by family income

- Richest:
  - Age 3: 53.9
  - Age 5: 59.9

- Poorest:
  - Age 3: 47.6
  - Age 5: 51.2
Verbal months ahead or behind at age 7 by number of risk factors

Kelly et al, forthcoming
Predictive effect of linguistic development in early childhood on adult mental health at age 34

Schoon et al Pediatrics 2010;126:e73-79
Clinically relevant behavioural problems at age 7, by number of risk factors

![Graph showing the percentage of clinically relevant problems by number of risk factors for mothers and teachers. The graph demonstrates an increasing trend as the number of risk factors increases.]
Income gap in the risk of socioemotional difficulties at 5 years of age
Adolescence
Adolescence

The period from the onset of puberty to that of an independent role in society
Puberty transitions

- Physical – stature, sexual characteristics
- Physiological – endocrine
- Psychological – autonomy, identity, decision making, social relationships
Social transitions

- Leaving education
- Entering employment
- Leaving parental home
- Partnership and/or family formation
Important markers

- Mental health
- Health behaviours
- Overweight/obesity
Recent decades - marked changes in health and wellbeing:

- Alcohol consumption, smoking, teenage pregnancy rates have declined
- Screen based media use, overweight and obesity and poor mental health have increased
Early menarche (by age 11) by family income

<table>
<thead>
<tr>
<th>Percent</th>
<th>Poorest</th>
<th>Richest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14.1</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>8.8</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td>6.8</td>
<td></td>
</tr>
</tbody>
</table>
Inequalities in obesity, poorest vs richest

![Graph showing the comparison of obesity odds between the poorest and richest groups across different ages.](image-url)
## Health behaviours by income quintile among youth (Age 14, MCS)

<table>
<thead>
<tr>
<th>Health Behaviour</th>
<th>Richest</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Poorest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy drinking (All)</td>
<td>7.0</td>
<td>9.0</td>
<td>10.7</td>
<td>10.2</td>
<td>7.1</td>
</tr>
<tr>
<td>Heavy drinking (current drinkers)</td>
<td>15.1</td>
<td>18.9</td>
<td>22.1</td>
<td>22.3</td>
<td>23.5</td>
</tr>
<tr>
<td>Ever smoked</td>
<td>8.7</td>
<td>11.4</td>
<td>14.7</td>
<td>21.4</td>
<td>20.1</td>
</tr>
<tr>
<td>Any illicit drug use</td>
<td>2.6</td>
<td>3.6</td>
<td>5.5</td>
<td>6.6</td>
<td>5.4</td>
</tr>
</tbody>
</table>

### Physical activity

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Richest</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Poorest</th>
</tr>
</thead>
<tbody>
<tr>
<td>5+ days</td>
<td>41.3</td>
<td>38.4</td>
<td>36.8</td>
<td>35.8</td>
<td>35.5</td>
</tr>
<tr>
<td>3-4 days</td>
<td>36.7</td>
<td>34.9</td>
<td>32.7</td>
<td>32.4</td>
<td>30.6</td>
</tr>
<tr>
<td>1-2 days</td>
<td>18.9</td>
<td>23.2</td>
<td>26.7</td>
<td>26.5</td>
<td>27.6</td>
</tr>
<tr>
<td>None</td>
<td>3.0</td>
<td>3.6</td>
<td>4.5</td>
<td>5.4</td>
<td>6.3</td>
</tr>
</tbody>
</table>
Depressive symptoms by family income

Kelly et al 2019 EClinMed
Prevalence of weekday hours of social media use

Per cent

Girls
Boys

Weekday hours of social media use

None
< 1 hour
1-3 hours
3-5 hours
5+ hours

Kelly et al 2019 EClinMed
Depressive symptoms by social media use

Kelly et al 2019 EClinMed
Social media use

Confounders

Poor sleep

Cyberbullying

Poor self-esteem

Body image

Depressive symptoms
Areas for further research:

- Child and adolescent overweight and obesity pose major societal and economic burdens. What are the factors driving widening inequalities?
- Sleep is now recognised as a public health priority. What are the broader contextual influences on sleep across the lifecourse?
- Poor mental health appears to be on the increase among young people – what are the contributing factors compared with earlier generations? Are inequalities increasing?
- Social media use is linked to multiple benefits, but pitfalls are apparent too. What factors underpin patterns of social media use? How might social media use influence wellbeing (relationships, mental health and educational attainments)?
- Loneliness is common among youth. Is it more prevalent now than in previous generations? What are the drivers?
Cigarette smoking in pregnancy: its influence on birth weight and perinatal mortality

<table>
<thead>
<tr>
<th>No. of cigarettes smoked per day</th>
<th>Death rate / 1000</th>
<th>Birth weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>32.0</td>
<td>3.386</td>
</tr>
<tr>
<td>1 – 4</td>
<td>38.5</td>
<td>3.295</td>
</tr>
<tr>
<td>5 – 9</td>
<td>42.2</td>
<td>3.204</td>
</tr>
<tr>
<td>10 – 19</td>
<td>41.6</td>
<td>3.208</td>
</tr>
<tr>
<td>20 – 30</td>
<td>41.2</td>
<td>3.175</td>
</tr>
</tbody>
</table>

Conclusion: ‘This evidence should have important implications for health education aimed at getting pregnant mothers to give up smoking’

Butler, Goldstein & Ross. BMJ 1972
Smoking in pregnancy

Smoking during pregnancy causes up to 2,200 premature births, 5,000 miscarriages and 300 perinatal deaths every year in the UK.

It also increases the risk of complications in pregnancy and of the child developing a number of conditions later on in life such as:

- premature birth
- low birth weight
- respiratory conditions
- problems of the ear, nose and throat
- obesity
- diabetes
