Early puberty in 11-year-old girls: Millennium Cohort Study findings

Yvonne Kelly, Afshin Zilanawala, Amanda Sacker, Robert Hiatt, Russell Viner

International Centre for Lifecourse Studies in Society and Health (ICLS)

www.ucl.ac.uk/icls  @icls_info  @childofourtime

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Research questions:

1. Are socioeconomic circumstances and ethnicity associated with early onset puberty?
2. Are adiposity and/or psychosocial stress associated with observed associations?
Millennium Cohort Study (MCS)

- Sample drawn from all live births in the 4 countries of the UK during 2000-2002
- Clustered at the electoral ward level with oversampling
- 18,552 households
- Home interviews
- 5 sweeps deposited: 9 months and 3, 5, 7 & 11 years
- Next sweep (age 14) available soon
Variables

Menstruation by age 11 years
Income
Ethnicity
Markers of adiposity (BMI and FMI)
Markers of stress – mother’s psychological distress, socioemotional difficulties, lone parent family
Odds ratios for menstruation by income

<table>
<thead>
<tr>
<th>Income</th>
<th>Risk</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richest</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Band 2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Band 3</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Band 4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Poorest</td>
<td>2.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Richest (6.8%)  Band 2 (7.2%)  Band 3 (8.8%)  Band 4 (12.8%)  Poorest (14.1%)
Odds ratios for menstruation by income

- Unadjusted
- + BMI
- + Psychosocial stressors
- Fully adjusted

Income:
- Richest (6.8%)
- Band 2 (7.2%)
- Band 3 (8.8%)
- Band 4 (12.8%)
- Poorest (14.1%)
Odds ratios for menstruation by ethnic group

- White: 8.6%
- Indian: 24.2%
- Pakistani: 14.8%
- Bangladeshi: 21.6%
- Black Caribbean: 13.0%
- Black African: 20.1%
Odds ratios for menstruation by ethnic group

- Pakistani (14.8%)
- Bangladeshi (21.6%)
- Black African (20.1%)

- Unadjusted
- + BMI
- + Psychosocial stressors
- Fully adjusted
Conclusion

Excess adiposity and psychosocial stress were associated with social inequalities in early puberty, whilst material disadvantage and adiposity were linked to ethnic inequalities in early puberty among girls.