The contribution of childhood and adult socioeconomic position to adult obesity and smoking behaviour: an international comparison

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Background Our objective was to investigate the contribution of childhood and adult socioeconomic position (SEP) to adult obesity and smoking behaviour, in particular to establish the role of childhood circumstances across different studies in Europe and the US.

Methods Seven population-based surveys in six Western countries (Britain, Denmark, Finland, Netherlands, Sweden, US) were examined, with participants aged 30–50 yr and born between 1910 and 1960. Adult smoking was analysed using three outcomes (ever, current, or ex-) and adult obesity was defined as body mass index (kg/m²) ≥ 30.

Results A strong effect of adult social position was observed for smoking outcomes and obesity. For example, manual SEP in adulthood increased the risk of ever smoking (adjusted odds ratio (OR) 1.47–2.00 for men; 0.94–1.81 for women), and obesity (adjusted OR 1.06–2.24 for men, 1.21–3.26 for women). In most studies, childhood position was not associated with ever-smoking. For current smoking, manual childhood position was associated among women (adjusted OR 1.09–1.54), but no consistent pattern was seen for men. For ex-smoking, manual childhood origins lowered the chance of quitting among women (adjusted OR 0.64–0.81) except in the US (OR = 1.17); among men this association was seen in fewer studies (adjusted OR 0.74–1.09). For obesity, manual origins increased the risk for women (adjusted OR 0.96–2.50); effects were weaker among men but mostly in the same direction (adjusted OR 0.79–1.42).

Conclusions As expected, adult SEP was an important influence on smoking behaviour and obesity. In addition, factors related to disadvantaged social origins appeared to increase the risk of obesity and reduce the probability of quitting smoking in adulthood, particularly in women.

Keywords Socioeconomic position, childhood, adulthood, smoking, obesity, life-course

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It is well-established that socioeconomic position (SEP) in adulthood is associated with mortality, healthy life expectancy and several important disease risk factors. Evidence is now growing that (SEP) in childhood also contributes to some types of mortality and morbidity in adult life. Many so-called ‘adult’ risk factors—such as cholesterol, blood pressure, smoking, and obesity—may develop in childhood and track into adulthood. For instance, the Bogalusa Heart Study showed that 77% of obese children became obese adults with worse heart disease risk factor profiles. An extensive review showed that blood cholesterol, blood pressure, and body mass index (BMI) measurements taken in adolescence or early adulthood were predictive of heart disease up to 50 yr later. For example, cholesterol measured in childhood predicted carotid artery intima-media thickness (a marker of atherosclerosis) at least as strongly as cholesterol measured in adulthood, and the childhood measures remained predictors after adulthood measures of cholesterol were taken into account.

The influence of childhood SEP on the development and trajectories of adult risk factors has been identified as a likely route through which early social circumstances exert an effect on adult health. For example, childhood SEP can affect cognitive development and educational achievement, which in turn, are major influences on health related behaviour, as well as adult SEP. However, there are few studies to date that investigate the link between childhood SEP and specific health behaviours such as adult smoking and obesity, and existing studies are predominantly from the UK. The limited range of studies in which this potentially important link has been investigated leaves open the question of whether childhood effects are specific to particular populations or whether they are found in populations born at different times and places.

We identified several studies in Europe and north America spanning cohorts born throughout the last half of the twentieth century to examine the role of both childhood and adult SEP on smoking and obesity in adult life. Smoking and adult obesity were selected because of their public health importance. Our aim was to establish whether childhood SEP influenced adult smoking and obesity and, if so, whether it acts mainly through an association with adult SEP. In addition, we examined whether the well-known association between smoking and obesity and adult SEP was largely due to circumstances in childhood. Associations between childhood SEP and adult smoking and obesity were investigated separately for men and women because previous work had suggested gender differences in these associations.

**Subjects and methods**

**Study samples**

Seven population-based studies in six countries, across a range of time periods and cohorts, were included. These studies are representative of their original birth samples, or local populations and have information on smoking and obesity in mid-life, and SEP in childhood and adulthood (Table 1). All except the British birth cohort studies used retrospective recall for childhood SEP. To ensure a focus on a comparable life stage, studies with a broad age range were restricted to 30–50 yr (to 54 yr in Finland); for the British cohort studies, one age within this range was selected.

**Measures**

**Socioeconomic position (SEP)**

For childhood, father’s occupation was used to identify manual/non-manual backgrounds. Childhood SEP was reported retrospectively, except in the British studies. For adult SEP, occupation was used to identify manual/non-manual groups, with women in paid work classified by their own occupation and housewives by their husbands’ occupation. Table 2 shows that most study participants could be allocated to a SEP in childhood and adulthood, but for a proportion there was insufficient information to allocate individuals to a manual or non-manual SEP. The latter included housewives with no data on husband’s occupation (US and Denmark) and farmers (Finland, Netherlands, Sweden). In these countries, the SEP of farmers—a category which traditionally included farm workers and self-employed farmers—changed as the agricultural sector declined. Where appropriate (childhood SEP in the Finnish study), farmers were allocated to the manual group; otherwise, where they represented a significant group (Finland, Sweden, Netherlands), they were included in a separate category. As the comparative focus of our study is on manual/non-manual groups, data are not presented for farmers in these studies. However, farmers were included in the analyses in order to avoid substantial reductions in sample sizes (see footnote for Table 2 for further details).

**Smoking and obesity**

Data on smoking were self-reported. Regular smoking was defined as smoking ≥1 cigarette/day; ex-smokers are ex-regular smokers (i.e. those who previously smoked ≥1 cigarette a day). Using this definition, we examined three smoking outcomes—ever smoking, current smoking, and ex-smoking (quitting). For obesity, the British and Finnish studies used measurements of height and weight; all other studies obtained self-reported data. Obesity was defined as BMI (kg/m²) ≥30 according to WHO recommendations. Analyses using overweight (BMI ≥ 25) showed similar results.

**Data analysis**

We first examined the separate associations of childhood and adult SEP on the three smoking measures and on obesity, separately for men and women, using logistic regression. Odds ratios (OR) and 95% confidence intervals (CIs) were calculated, age standardized where necessary. For smoking, we calculated the OR of ever smoking vs never smoking, current smokers vs others (never smokers and ex-smokers) and ex-smokers vs current smokers. Next, in multivariate analyses including both SEP measures, we obtained mutually adjusted estimates for childhood and adult SEP. Where farmers were omitted from the manual/non-manual classification (Finland, Netherlands, Sweden) they were included in multivariate analyses as a third socioeconomic category. Significant effects are indicated by 95% CI, though our primary focus is on consistency of results across studies. For studies in which farmers were allocated to a separate socioeconomic category, we undertook analyses with and without this group and found similar results (data not presented).

**Results**

Table 1 presents basic information for the seven studies. Most individuals came from a manual socioeconomic background...
Table 1 Basic information on study populations

<table>
<thead>
<tr>
<th>Country/study</th>
<th>Samplea</th>
<th>Year of birth</th>
<th>Age (yr) range in analyses</th>
<th>N in studyb</th>
<th>Survey instrument</th>
<th>Year of baseline data collection</th>
<th>Year of outcome measurement</th>
<th>Additional study details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>Area-based</td>
<td>1930–47</td>
<td>42–54</td>
<td>2284 men</td>
<td>Personal interview/clinical exam</td>
<td>1984–89</td>
<td>1989</td>
<td>3433 men aged 42, 48, 54 or 60 yr eligible for the study. Exclusions because of death, serious disease or migration = 198.</td>
</tr>
<tr>
<td></td>
<td>Kuopio ischaemic heart disease risk factor study27</td>
<td></td>
<td></td>
<td>(1918)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Survey of living conditions (Undersökning av levnadsförhållanden)28</td>
<td></td>
<td></td>
<td>(9218)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>National</td>
<td>1950–60</td>
<td>40 and 50</td>
<td>7299b</td>
<td>Postal questionnaire</td>
<td>2000</td>
<td>2000</td>
<td>Sample from AKF Longitudinal Register at Statistics Denmark, includes 10% of adults. Total response rate: 66% (out of 11 082 adults)</td>
</tr>
<tr>
<td></td>
<td>Danish Longitudinal study on work, unemployment and Health26</td>
<td></td>
<td></td>
<td>(6143)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Britain</td>
<td>National</td>
<td>1946</td>
<td>36</td>
<td>5362–3322</td>
<td>Personal interview with mother &amp; cohort member</td>
<td>1946</td>
<td>1982</td>
<td>Socially stratified sample of single, legitimate births in 1 week in March 1946, followed throughout childhood to adulthood. Attrition to age 36 yr: death (323), refusal (520), emigrated (644), untraced (553). Missing data = 52</td>
</tr>
<tr>
<td>1946 birth cohort23</td>
<td></td>
<td></td>
<td></td>
<td>(3266)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Britain</td>
<td>National</td>
<td>1958</td>
<td>33</td>
<td>17 000–11 405</td>
<td>Personal interview with mother and cohort member</td>
<td>1958</td>
<td>1991</td>
<td>Baseline sample is 98% of all births in 1 week in March 1958 (~17 000), followed throughout childhood to adulthood (11 405 at 33 yr), Attrition to 33 yr: death (315), refusal (189), emigrated (269), untraced (192), traced but not interviewed (529). Missing data = 2055</td>
</tr>
<tr>
<td>1958 birth cohort24</td>
<td></td>
<td></td>
<td></td>
<td>(9350)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>Area-based (south-east)</td>
<td>1942–61</td>
<td>30–49</td>
<td>5857</td>
<td>Postal questionnaire</td>
<td>1991</td>
<td>1991</td>
<td>Sample aged 15–74 yr with over-sampling of adults &gt;45 yr and in the lowest and highest SEP. Total response rate 70% (n = 18 973/27 070). Eligible in age group 30–49 yr (n = 5857). Exclusions: missing values (n = 800). Adjustment for overrepresentation was made by proportionally weighting data to resemble the composition of base population.</td>
</tr>
<tr>
<td>Globe Study 28</td>
<td></td>
<td></td>
<td></td>
<td>(5057)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alameda County29</td>
<td></td>
<td></td>
<td></td>
<td>(2727)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a All samples are representative, including both men and women, except Finland with men only; in all studies cross-sectional data are used, except for the two prospective British birth cohorts.

b Sample at baseline.

c Differences between N and n vary partly because of differences in study design: for example, cross-sectional studies do not generally include deaths or emigrations in their sampling frame, whereas these appear as attrition in birth cohort studies.
As expected, in each study a larger proportion was in a non-manual group in adulthood (range 39–63%), showing secular changes in inter-generational social mobility and the overall decline in all these countries of manual jobs.

Smoking

The prevalence of ever smoking ranged from 44 to 82% (men) and from 45 to 75% (women). Rates of ever smoking were consistently higher in manual groups, except among US females (Table 3) but the US data were collected in 1965, prior to the peak of the US smoking epidemic among women. The absolute difference between manual and non-manual groups was generally large, though ranging from 2% (US women) to 20% (British men in the 1958 cohort). There was a consistent effect of childhood position in women, such that manual background increased the risk of current adult smoking (Table 4). The childhood effect on current smoking remained in four studies (adjusted ORs 1.26–1.54) although it attenuated with adjustment for adult SEP. In men, only one study showed a childhood effect after adjustment for adult position. In general, adult SEP showed strong effects on the odds of current smoking and very little of the effect was explained by childhood social background (adjusted ORs for men 1.50–2.33; for women 1.13–2.04) (Table 4).

The prevalence of ex-smoking (among ever smokers) ranged from 25 to 62% among men and from 13 to 52% among women (Table 3). Ex-smoking was more prevalent among the non-manual group, except in the Finnish study. Figure 1 shows that women with manual childhood origins had a reduced

### Table 2 Distribution (%) of SEP in childhood and adulthood

<table>
<thead>
<tr>
<th>Study</th>
<th>Childhood SEP</th>
<th>Adult SEP</th>
<th>Childhood SEP</th>
<th>Adult SEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>72</td>
<td>28</td>
<td>44</td>
<td>39</td>
</tr>
<tr>
<td>Sweden</td>
<td>48</td>
<td>23</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>Denmark</td>
<td>66</td>
<td>18</td>
<td>36</td>
<td>51</td>
</tr>
<tr>
<td>Britain, 1946</td>
<td>73</td>
<td>25</td>
<td>52</td>
<td>46</td>
</tr>
<tr>
<td>Britain, 1958</td>
<td>62</td>
<td>30</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Netherlands</td>
<td>53</td>
<td>32</td>
<td>41</td>
<td>54</td>
</tr>
<tr>
<td>US</td>
<td>54</td>
<td>37</td>
<td>51</td>
<td>49</td>
</tr>
</tbody>
</table>

* Childbirth SEP (based on measures of father’s occupation or vocational training: manual vs non-manual).
* Adult SEP (own occupation; manual vs non-manual).
* Farmers were not classified as manual and are omitted from the table, although they were included in analyses as a separate category.
* Housewives, persons with unclassifiable occupations, and farmers are not included in manual/non-manual groups.
* Weighted to allow for original sampling procedure.

### Table 3 Prevalence (%) of smoking (ever, current and ex-) by gender and adult SEP

<table>
<thead>
<tr>
<th>Study</th>
<th>Ever smokers</th>
<th>Current smokers</th>
<th>Ex-smokers (% of ever smokers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>80</td>
<td>68</td>
<td>–</td>
</tr>
<tr>
<td>Sweden</td>
<td>71</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>Denmark</td>
<td>72</td>
<td>62</td>
<td>66</td>
</tr>
<tr>
<td>Britain, 1946</td>
<td>80</td>
<td>72</td>
<td>73</td>
</tr>
<tr>
<td>Britain, 1958</td>
<td>61</td>
<td>44</td>
<td>60</td>
</tr>
<tr>
<td>Netherlands</td>
<td>82</td>
<td>74</td>
<td>75</td>
</tr>
<tr>
<td>US</td>
<td>81</td>
<td>72</td>
<td>58</td>
</tr>
</tbody>
</table>

* Adult SEP (own occupation; manual vs non-manual).
* Weighted to allow for original sampling procedure.

The prevalence of ever smoking ranged from 44 to 82% (men) and from 45 to 75% (women). Rates of ever smoking were consistently higher in manual groups, except among US females (Table 3) but the US data were collected in 1965, prior to the peak of the US smoking epidemic among women. Age adjusted ORs in Table 4 show no consistent effect of childhood position on ever smoking, whereas there is a strong association between adult position and ever smoking, except in US women (range in adjusted ORs 1.47–2.00 for men; 0.94–1.81 for women).

Current smoking, ranging from 22 to 61% in men and from 26 to 51% in women, was also more prevalent among manual groups (Table 3). The absolute difference between manual and non-manual groups was generally large, though ranging from 2% (US women) to 20% (British men in the 1958 cohort). There was a consistent effect of childhood position in women, such that manual background increased the risk of current adult smoking (Table 4). The childhood effect on current smoking remained in four studies (adjusted ORs 1.26–1.54) although it attenuated with adjustment for adult SEP. In men, only one study showed a childhood effect after adjustment for adult position. In general, adult SEP showed strong effects on the odds of current smoking and very little of the effect was explained by childhood social background (adjusted ORs for men 1.50–2.33; for women 1.13–2.04) (Table 4).

The prevalence of ex-smoking (among ever smokers) ranged from 25 to 62% among men and from 13 to 52% among women (Table 3). Ex-smoking was more prevalent among the non-manual group, except in the Finnish study. Figure 1 shows that women with manual childhood origins had a reduced...
chance of ex-smoking, except in the US, and this was mostly unexplained by adjustment for adult position (adjusted ORs 0.64–0.81 and for the US 1.17). For men, the pattern was less consistent, but four of the seven studies (the US, Danish, and two British studies) show that manual childhood position reduced the chance of being an ex-smoker, even after allowing for adult SEP. Figure 1 shows that for males and females in all countries except Finland, manual adult SEP reduced the probability of being an ex-smoker. This effect remained after control for childhood SEP (adjusted ORs 0.48–0.70). So for ex-smoking there was a contribution of both childhood and adulthood SEP to the chance of quitting.

Obesity

The prevalence of obesity ranged from 3 to 17% among men and from 2 to 16% among women, with the highest prevalence found among those with manual occupation (Table 5). The absolute socioeconomic differences in obesity were modest (range 1–10%), mainly due to low prevalence in these populations, while the relative differences were fairly large, especially among women in the US and Sweden, where three times as many women in manual occupations, when compared with non-manual, were obese. All studies show that women from manual childhood backgrounds had an elevated risk of obesity in adulthood (age adjusted ORs 1.15–2.94) (Figure 2). This finding is irrespective of differences in prevalence; it is strongest in studies with measured body-size (the British studies) and remains for most countries, though attenuated, after adjustment for adult SEP (adjusted ORs 0.96–2.50). Among men, the association with childhood position was mostly in the same direction, although effects were weaker (adjusted ORs 0.79–1.42).

Most studies show a strong association between obesity and adult SEP: men and women in manual social classes had an increased risk of obesity (Figure 2). This risk was largely unaffected by adjustment for childhood SEP (adjusted ORs 1.06–2.24 for men; 1.21–3.26 for women). In the two British studies where childhood position was measured prospectively, the adult effect showed some attenuation with adjustment.

Discussion

In line with other studies, our analyses across six countries show that, in general, adult SEP influences adult smoking behaviour and obesity in mid-life. Associations with adult position tended, in general, to be more pronounced than,
Heterogeneity is therefore likely in the effects of childhood and adult social position on smoking and obesity measured in different countries among different birth cohorts. However, this study provides some evidence, at least in women, that manual social origins increased the risk of obesity and reduced the chance of quitting smoking in adulthood, irrespective of adult social position. The effect of childhood SEP was inconsistent for ever-smoking, and in men also for current smoking. It is noteworthy that there is some consistency across studies in the effect of child SEP for women, given the diversity of year of birth and geographical location. This may be, at least in part, because the adult socioeconomic measure, based on occupation, is less adequate for women than for men. It also points to the importance of studying the associations between childhood SEP, adult SEP and adult health risks separately for men and women. There are few such studies. However, these studies suggest that both the social pathways from childhood SEP to adult SEP and the childhood influences on adult health behaviours may be gender dependent. For men and women, education has been identified as a major pathway in the intra-generational continuities in SEP and one which mediates the association between childhood SEP and adult health behaviours like smoking. Also, reproductive pathways and early and lone parenthood in particular, have been found to have an additional effect on women’s SEP and smoking status in adulthood.

and little explained by, childhood SEP. Building on this well-established finding, we examined whether childhood SEP influences these two major risk factors for chronic disease in adult life and if so, whether this acts mainly through an association with adult position. A supplementary question was whether the associations for smoking and obesity with adult social position could be explained by childhood position. Socioeconomic gradients in smoking and obesity are known to vary over time, across cohorts and between societies. 

Figure 1 Odds Ratio (95% CI) for quitting smoking associated with SEP: (a) Childhood manual SEP (age-adjusted ORs and adjusted for adult SEP), (b) adult manual SEP (age-adjusted ORs and adjusted for childhood SEP) with non-manual as reference category

Table 5 Prevalence (%) of obesity by gender and adult SEP

<table>
<thead>
<tr>
<th>Study</th>
<th>BMI 30+</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>17</td>
<td>16</td>
<td>–</td>
</tr>
<tr>
<td>Sweden</td>
<td>6</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Denmark</td>
<td>15</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Britain, 1946</td>
<td>6</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Britain, 1958</td>
<td>13</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Netherlands</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>US</td>
<td>7</td>
<td>4</td>
<td>15</td>
</tr>
</tbody>
</table>

* Adult SEP (own occupation; manual vs non-manual).
* Weighted to allow for original sampling procedure.
Methodological considerations

The selection of studies was arbitrary, but all were population-based, representative of the areas from which they were drawn, included adults in mid-life born at different times in different places, and unusually, had information on childhood and adult-life SEP. To optimize comparability of outcome, the age range in some studies, such as The Globe and Alameda County studies, was restricted, resulting in a reduction of sample size. While for most studies smoking outcomes and BMI were obtained within the last 20 yr, in the US study information was gathered in the 1960s when obesity was less prevalent and smoking among men had peaked but among women was still rising to its zenith. An additional consideration is that adult SEP was obtained contemporaneously, whilst data on childhood position were usually obtained retrospectively. This may result in an under-estimation of the effects of childhood SEP compared with adult SEP since the latter may be better measured. A further possibility is that smoking and obesity are linked to social mobility and that this, in turn, influences the associations observed in our study. Some evidence exists that adolescent health-related behaviours, including smoking, physical activity, and diet, are related to an individual’s social trajectory. Similar findings have been reported for obesity, at least among women. It is plausible therefore, that social mobility would conflate associations for adult SEP. The same argument does not apply to childhood SEP, which pre-dates any social mobility.

Comparison with other studies: smoking

In line with other studies of northern Europe and the US, we found that manual adult social position generally increased the odds of ever smoking and current smoking and reduced the odds of ex-smoking. An additional consideration is that adult SEP was obtained contemporaneously, whilst data on childhood position were usually obtained retrospectively. This may result in an under-estimation of the effects of childhood SEP compared with adult SEP since the latter may be better measured. A further possibility is that smoking and obesity are linked to social mobility and that this, in turn, influences the associations observed in our study. Some evidence exists that adolescent health-related behaviours, including smoking, physical activity, and diet, are related to an individual’s social trajectory. Similar findings have been reported for obesity, at least among women. It is plausible therefore, that social mobility would conflate associations for adult SEP. The same argument does not apply to childhood SEP, which pre-dates any social mobility.

Figure 2 Odds Ratio (95% CI) for obesity (BMI ≥ 30 kg/m²) associated with SEP: (a) Childhood manual SEP (age-adjusted ORs and adjusted for adult SEP), (b) adult-manual SEP (age-adjusted ORs and adjusted for childhood SEP) with non-manual as reference category.
childhood position for men, though some effects are reported for women. We have broadened this focus to examine a potential influence of social origins on other aspects of smoking behaviour. Our findings suggest that the effects of childhood may be more evident in relation to quitting. Individuals with non-manual social class of origin are more likely to quit, with childhood influences stronger among women than men. Quitting holds the key to reducing the public health burden of smoking. There is evidence that poor childhood origins are linked to higher levels of cigarette consumption (and therefore nicotine addiction) in adolescence and adulthood, which mitigate against quitting later in life. Factors in the home environment associated with childhood SEP, including parental smoking, may have an influence on the persistence of smoking into adulthood. In addition, childhood position may act through an effect on educational and social pathways. However, becoming a smoker (ever smoking) was not associated with SEP in childhood, despite its proximity to adolescence and early adulthood, which are the key life stages for the uptake of regular smoking.

It is well-established that socioeconomic gradients in smoking change as populations move through the smoking epidemic, first among men and then among women. We would therefore not expect the influence of childhood and adult SEP to be uniform across time, place, and gender. Variability of childhood effects was seen across our studies, and also in the magnitude of adulthood effects. There is nonetheless a pervasive influence of adult position on all three aspects of smoking behaviour, which is not explained by childhood background.

Comparison with other studies: obesity

We find, as do others, that manual social position in adulthood increases the risk of obesity, most notably in women and less consistently in men. There are now several studies also showing that childhood social origins have long-lasting effects on adult obesity, and that, as in our study, this childhood influence persists after allowing for adult position. Explanations for cumulative effects of both childhood and adult SEP are likely to include both biological and social mechanisms and pathways. Education level is a strong determinant of health-related behaviours, such as diet and physical activity.

Elsewhere we have shown that education is related to adult BMI in the two British studies and that this largely accounts for the relationship with adult social position, whereas it does not explain the association between social origins and adult obesity. The underlying mechanisms are still to be identified. One possibility is that there may be prenatal or early post-natal influences that have long-term effects on body composition. Further research is needed on these complex patterns and how they relate to the dramatic secular trend in obesity in recent decades.

To conclude, this study confirms that, across time and place, adult SEP is important for smoking and obesity in middle age. In addition, our findings suggest that influences from childhood may also contribute, in particular, to quitting smoking and to obesity. Future research should investigate these influences using other datasets and examine childhood position in relation to other adult risk factors. In terms of public health policy, our study points to the importance of interventions targeted not only at changing health behaviours in adulthood, for example through voluntary and statutory agreements on food and tobacco advertising, fiscal regulations, and investments in health promotion and support services. In line with other studies, it points to the potential public health gain of a life-course approach to tackling smoking and obesity. This would include policies which address inequalities in socioeconomic circumstances in childhood as well as adult life.

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KEY MESSAGES

- Socioeconomic inequalities in adult risk factors such as smoking and obesity are well-established. Less is known about the influence of childhood socioeconomic position across time and place, and whether it explains some of these adult inequalities.
- Seven studies in six countries showed adult social position to be an important influence on obesity and quitting smoking.
- Manual social background in childhood increased the risk of obesity and reduced the chance of quitting smoking in adulthood in most, but not all, populations.

References


ROLE OF CHILDHOOD AND ADULT SEP ON ADULT OBESITY AND SMOKING


Commentary: How does socioeconomic disadvantage during childhood damage health in adulthood? Testing psychosocial pathways

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The multi-national comparative study by Power and colleagues1 provides strong evidence for a significant correlation between low socioeconomic status (SES) and health risk in adulthood. As expected, adult SES was related to obesity and smoking behaviours. However, low childhood SES was also significantly related to adult health risk, even after adjusting for contemporaneous adult SES. The evidence supports a long-term association between childhood SES and adult health that is not simply due to the life course continuity of low SES. To obtain such broadly consistent findings in seven samples from six countries is impressive, more so, because of the many factors that work against this outcome (e.g. historical, cultural, sampling, and measurement differences across studies).

The challenge is now to explain the reasons for these disparities, ideally by mapping the developmental pathways leading from childhood socioeconomic adversity to poor adult health. Currently little is known about mediating pathways, mainly because most datasets documenting health inequalities have limited data to explore possible explanations for these inequalities.2 The key limiting factor has been the lack of longitudinal birth cohort studies that contain detailed life history data from birth to adulthood and direct physiological assessments of health. To date, empirical work has been limited by several factors. First, the majority of research on the psychosocial correlates of physical health has been cross-sectional. In contrast, longitudinal methods and within-subject comparisons offer a stronger strategy for inferring developmental influences. Second, many available longitudinal studies have suffered high attrition rates, selectively losing unhealthy participants. Third, reported associations between psychosocial risk factors (e.g. psychiatric symptoms) and health outcomes (e.g. obesity) often neglect to control for confounding factors (e.g. medical illness). Fourth, and more generally, epidemiological studies with good health data tend to have weak psychosocial data and vice versa. Gold standard measurement of psychosocial variables is paramount, as are direct measures of physical health uncontaminated by self-reported biases.

Childhood SES is a distal risk factor. Distal factors are important because they set the scene for more proximal risk factors to exert their influence. There are several mechanisms by which proximal factors might act to explain the long-term relation between childhood SES and adult health. These include delivery of class-biased health care during children’s formative years; differences related to social-class in health promoting parenting practices; and stressors related to social class in childhood that might alter biological systems. The importance of the psychosocial stress pathway has been hotly debated.3,4 Here we suggest three classes of candidate ‘stress’ mediators as a way of illustrating the rationale, data, and methods required to strengthen future tests of psychosocial mediation of the gradient between childhood SES and adult health.

(i) Psychologically stressful family environments interfere with homeostatic processes and can cause health problems in children.5 At least three domains appear relevant. The first concerns the poor mental health of parents, which can compromise their ability to optimally provide for the child.