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Short report

Lifecourse influences on women's smoking before, during and after pregnancy☆

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ABSTRACT

The concept of the socioeconomic lifecourse is increasingly informing understanding of the social patterning of cigarette smoking. We investigated lifecourse influences on (i) women's smoking status (smoker/non-smoker) before pregnancy and (ii) quitting in pregnancy in the UK Millennium Cohort study. Our analyses included conventional measures of the socioeconomic lifecourse (woman's childhood circumstances, education, current socioeconomic circumstances) and measures of her domestic lifecourse (age of becoming a mother, current cohabitation status), as well as parity (first/subsequent child). In analyses of quitting, we also included pre-pregnancy cigarette consumption.

Our study underlined, firstly, the importance of lifecourse disadvantage. Those experiencing greater disadvantage with respect to their childhood circumstances, education and current circumstances were at greater risk of being a smoker before pregnancy. A disadvantaged domestic lifecourse – earlier entry into motherhood and lone motherhood–further increased the risk. Poorer childhood circumstances, educational disadvantage, poorer current circumstances and early motherhood also significantly increased the odds of quitting in pregnancy. Secondly, parity was a major predictor of smoking behaviour. First-time mothers had higher odds both of smoking before pregnancy and quitting in pregnancy. The effects of parity were independent of women's lifecourse. Our study supports tobacco control policies which recognise and address inequalities across the lifecourse. However, our study suggests that the dye is not irrevocably cast by social disadvantage: first pregnancy uniformly increases the chances of quitting. Interventions which help smokers having their first baby to quit have an important part to play in promoting maternal and child health.

Background

The concept of 'the socioeconomic lifecourse' (Kuh, Power, Blane, & Bartley, 2004) is shedding light on socioeconomic gradients in smoking in high-income countries. In its conventional formulation, the concept links socioeconomic circumstances (SEC) in childhood (indexed for example by parental occupation) to educational pathways (e.g. age of leaving fulltime education) and adult SEC (e.g. own occupation). Studies with relevant measures have found that the effects of childhood SEC on smoking risk are largely mediated by education and adult SEC (Brunner, Shipley, Blane, Smith, & Marmot, 1999; Gilman, Abrams, & Buka, 2003; Graham & Der, 1999; Power et al., 2005).

However, women's socioeconomic lifecourse is only partially captured by this conventional model. Partnership and parenthood histories are also critical determinants of women's lifetime circumstances, even in societies where most working-age women are in paid employment (Graham, 2007). Thus, early and lone motherhood independently increase the risk of persisting disadvantage, compounding the effects of childhood disadvantage with which both are associated (Graham, 2007). This suggests that the 'domestic lifecourse' should be integral to lifecourse analyses of women's smoking (Graham, Francis, Inskip, Harman, & the SWS Study Team, 2006). Ideally, detailed measures of parenting and partnership histories would be used; in their absence, age at first birth and cohabitation status (living alone/with a partner) provide proxies.

A few studies of smoking in the general female population have included measures of the conventionally-measured and the domestic lifecourse. They suggest that both early and lone motherhood increase the odds of smoking and reduce odds of quitting after adjustment for childhood SEC, education and adult SEC (Graham et al., 2006; Jefferis, Power, Graham, & Manor, 2004; Tehranifar, Liao, Ferris, & Terry, 2009).

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We extend this approach by focusing on smoking in pregnancy, a life-stage triggering positive changes in smoking habits. Estimates suggest that 15–30% of pregnant smokers quit and, while the majority resume smoking after birth, the long-term quit rate is higher than among the non-pregnant population (USDHHS, 2001; West, 2002). Lifecourse factors are known to be important: smoking rates are higher and quit rates are lower among expectant mothers with lower educational levels and in poorer circumstances, and among younger and unpartnered women (USDHHS, 2001; West, 2002). Spencer (2006) investigated the effects of childhood disadvantage (measured by father's occupation) on smoking status in pregnancy, noting that a combined measure of low educational attainment, teenage pregnancy and poor adult SEC mediated its effects. Parity is also known to be a predictor, with higher quit rates among women expecting their first baby than among those who are already mothers (Kahn, Certain, & Whitaker, 2002; West, 2002). It has yet to be established whether the positive effects of first pregnancy are blunted by or independent of disadvantage across the lifecourse.

We investigate (i) smoking status (smoker/non-smoker) before pregnancy and (ii) quitting in pregnancy in analyses that include socioeconomic lifecourse measures, both conventional and domestic, and parity. We focus on white women from the UK/Ireland; we are separately investigating smoking patterns among women from other ethnic groups where diverse migration histories and gender norms are important influences (Hawkins, Lamb, Cole, Law, & the Millennium Cohort Study Child Health Group, 2008; Sproston & Mindell, 2006).

Methods

Participants

The Millennium Cohort Study (MCS) includes children born in 2000–2002 to families resident in the UK (Dex & Joshi, 2005). The first interview occurred when the infant was 9 months old (response 72%); 80% (14 630) of the singleton infants participated in the second interview when the child was 3 years (Plewis & Ketende, 2006). Mothers reported their ethnicity, classified using official guidelines (ONS, 2003). White women were further categorised as being from the UK or Ireland rather than from any other country. Ethical approval was received from the South West and London Multi-Centre Research Ethics Committees and face-to-face home interviews were conducted by an experienced research team.

Among the 12,159 British/Irish white mothers with singleton children who participated in both contacts, 11,857 (98%) had data available to examine lifecourse influences on smoking before pregnancy. Exclusions were primarily because the main respondent was not female (95), not a natural parent (66) and/or information was missing on current SEC (133). For information on smoking at 9 months postpartum, 11,403 (94%) mothers had data available; additional exclusions were because information was missing on postpartum smoking and/or they were pregnant again.

Of the 4455 women who smoked before pregnancy, 4427 (99%) had data available to examine quitting: 28 were excluded because information was missing on whether they quit.

Outcome measures

In line with UK practice, women who reported smoking one cigarette or more a day were considered to be regular smokers (Ali et al., 2009). The first interview asked 'about how many cigarettes (including roll-ups) a day were you usually smoking just before you became pregnant?'. Those reporting smoking ≥ 1 cigarette a day were defined as *smoking prior to pregnancy*. Mothers were also asked whether they currently smoked any tobacco products: those smoking ≥ 1 cigarette a day were defined as *smoking at 9 months postpartum*.

The first interview also asked mothers whether they changed the amount they smoked during pregnancy and the month they made this change. Those reporting their consumption in months one through six as zero were defined as *quitting in pregnancy* (93% of quitters reported quitting in months 1–3; 7% in months 4–6). Women who reported quitting after the sixth month ($n = 7$) were classified as smoking throughout pregnancy.

Predictive factors

The first interview provided our measure of education (age of leaving fulltime education) and adult SEC. Adult SEC was measured by mother's occupation, classified using the UK's official National Statistics Socio-economic Classification (NS-SEC) in its 4-category version (Rose & Pevalin, 2003) and by annual household income, a more direct measure of family living standards; if this was missing, values from the second interview were substituted (553). Two domestic lifecourse measures were

Table 1
Social profile of the sample ($n = 11{,}857$).

	N	Weighted %
Childhood circumstances[a]		
Highest	2514	22.9
Intermediate	2561	21.6
Lowest	4553	37.7
Economically inactive	925	6.7
Don't know	1304	11.0
Missing	0	
Age of leaving education		
22 and over	1151	9.7
19–21	1448	12.2
17–18	3538	29.6
16 and under	5692	48.6
Missing	28	
Age at first live birth		
30+	3002	26.6
25–29	3470	30.4
20–24	3002	24.2
14–19	2266	18.8
Missing	117	
Current NS-SEC[a]		
Highest	3643	31.3
Intermediate	2651	23.4
Lowest	5031	41.3
Economically inactive	532	3.9
Missing	0	
Household income		
£33000+	2628	24.4
£22000–33000	2603	23.0
£11000–22000	3805	31.7
£0–11000	2628	20.9
Missing	193	
Cohabitation status		
Non-lone mother	10051	85.8
Lone mother	1806	14.2
Missing	0	0
Parity		
Not first live birth	6763	57.3
First live birth	5040	42.7
Missing	54	

[a] highest = managerial & professional occupations; intermediate = intermediate occupations; lowest = routine & manual occupations; economically inactive = never worked & long-term unemployed.