



# Can national surveys help reduce smoking in pregnancy?

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## INTRODUCTION

Smoking during pregnancy increases the risk of miscarriage, stillbirth and sudden infant death, while babies born to mothers who smoke are more likely to be born underweight and in poor health. Smoking during pregnancy is a major health inequality, with smoking rates among pregnant teenagers and women in more disadvantaged groups being considerably higher than in older and more affluent groups. Mothers in routine and manual occupations are five times more likely to have smoked throughout pregnancy compared those in managerial and professional occupations.

England's Tobacco Control Plan (2017) set a national ambition to reduce the rate of smoking throughout pregnancy from 10.8% in 2017/18 to 6% by 2022. Data collected on smoking status at time of delivery have shown no significant decrease in recent years which suggests this target is at risk of not being met.

To date efforts have focussed on assisting smokers to quit when pregnant, but social network theory suggests living in a high prevalence community makes cessation harder for disadvantaged smokers. It is therefore important to explore pre-conception smoking rates in both females and males in groups where smoking in pregnancy is known to be high in order to consider how they can be encouraged to quit smoking before, as well as during and after, pregnancy.

We investigate whether analysis of national surveys can assist in targeting social networks interventions appropriately by exploring current smoking prevalence variation across groups.

## METHODS

We analysed responses to the question 'Do you smoke cigarettes at all nowadays?' from the Annual Population Survey 2012-2017 for England residents.

In each annual dataset, responses were excluded where the respondent's age was less than 18, they were not resident in England or did not have a valid response for smoking status.

Smoking prevalence estimates were calculated using weighted mean averages to make it more representative of the population and we tabulated these along with the corresponding 95% confidence intervals calculated using the Linearised-Jackknife method in Stata.

We compared results for current smokers in all adults aged 18+ and the younger age group 18-34 years for all respondents in England followed by only those of white ethnicity. We then further stratified the analysis by socio-economic group based on current occupation and deprivation decile based on local authority of residence. This was repeated for each region in England where possible.

Year of survey	All adults	Women		Men	
	age 18+	age 18+	age 18-34	age 18+	age 18-34
2012	19.32 (19.07-19.57)	17.01 (16.71-17.30)	21.64 (21.01-22.27)	21.76 (21.41-22.10)	28.22 (27.47-28.99)
2013	18.39 (18.14-18.64)	16.22 (15.93-16.51)	20.71 (20.06-21.36)	20.68 (20.34-21.03)	27.15 (26.38-27.92)
2014	17.85 (17.60-18.09)	15.60 (15.32-15.89)	20.34 (19.71-20.98)	20.21 (19.87-20.56)	27.14 (26.36-27.91)
2015	16.92 (16.68-17.17)	14.89 (14.60-15.17)	19.24 (18.59-19.89)	19.06 (18.73-19.40)	24.81 (24.07-25.56)
2016	15.52 (15.27-15.77)	13.71 (13.42-14.00)	17.70 (17.05-18.36)	17.41 (17.07-17.75)	22.56 (21.80-23.32)
2017	14.87 (14.63-15.11)	13.01 (12.74-13.29)	16.30 (15.67-16.92)	16.81 (16.47-17.15)	21.68 (20.88-22.48)

Table 1: Smoking prevalence in adults (% current smokers) by sex and age group (plus corresponding 95% confidence intervals)

## RESULTS

In 2017, 14.9% of adults in England (age 18+) were current smokers with higher rates in men than women (16.8% compared with 13.0%). Though younger people have had a faster rate of decline in the current smoking trend (see table 1), young men and women (age 18-34) continue to have significantly higher rates of smoking (16.3% and 21.7% respectively in 2017).

Focussing on White respondents we see that smoking rates for young white men and women have seen a significant decrease from 2012 to 2017 yet still remain higher than the population as a whole (18.6% in 2017 down from 24.9% in 2012 for women, and 22.6% down from 29.8% for men). Further stratified by deprivation decile young White men in the most deprived areas have seen the largest change between 2012 and 2017, with the most deprived decile having a lower smoking prevalence in 2017 than the least deprived in 2012 (see table 2). However there remain significant differences by deprivation decile in both men and women with around a 5% difference between the most and least deprived areas for men (24.0% compared with 19.1%) and around 6% difference for women (21.7% compared with 14.3%).

Further investigation showed that White men and women working in routine and manual (R&M) occupations were significantly more likely to smoke than their counterparts working in other occupations (see figure 1) and in 2017 smoking rates in R&M workers were more than double that of managerial and professional workers (28.4% compared with 12.0% for women and 32.0% compared with 13.4% for men).

UTLA deprivation decile	Women		Men	
	2012	2017	2012	2017
Most deprived	27.3	21.7	31.4	24.0
2nd most	28.1	19.4	31.8	21.7
3rd most	26.3	19.3	30.4	23.1
4th most	26.5	20.9	33.8	26.6
5th most	21.0	18.8	28.8	24.1
5th least	25.4	17.3	28.4	24.8
4th least	21.9	16.5	26.6	22.1
3rd least	24.1	14.6	27.9	18.1
2nd least	21.5	15.8	26.5	19.3
Least deprived	17.4	14.3	26.8	19.1

Table 2: Smoking prevalence in young White respondents by sex and deprivation decile, England 2012 and 2017

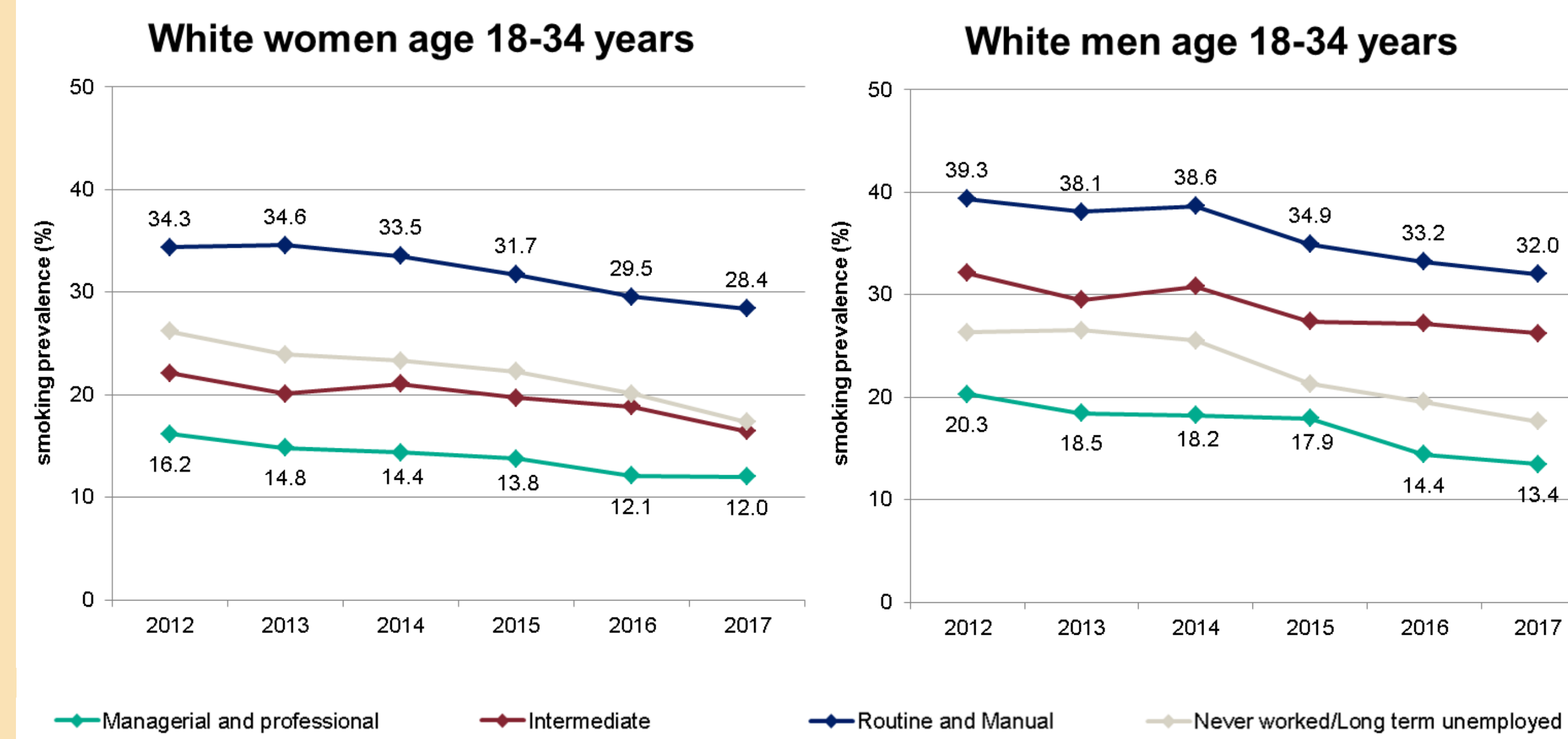


Figure 1: Trend in smoking prevalence in young White respondents by sex and socio-economic group, England 2012-2017



Figure 2: Smoking prevalence in White routine and manual workers, by region and sex, England 2017

Similar patterns were seen across regions, with R&M workers having significantly higher numbers of smokers than other occupations.

Between regions, the highest rates for women were seen in Yorkshire & the Humber (32.0%), which is double the rate of smoking calculated for all women living in this region (15.4% for all age 18+).

38.3% of men working in R&M occupations in London were smokers which is 20% higher than the calculation for all men (age 18+) in the same area (18.1%).

Interestingly there are smaller differences between women and men in the subset of R&M workers in each region compared with the population as a whole.

## DISCUSSION

Targeting interventions at young, routine and manual workers could help reduce smoking prevalence in these communities, which we would expect improve the number of smokefree pregnancies and smokefree families, helping somewhat towards reducing inequalities

Sustained system-wide action is required to address this issue and there are programmes of work underway at national, regional and local levels, all based on NICE guidance:

This needs to link to an overarching prevention pathway spanning the preconception period and pregnancy, bringing together the action on smoking and other risk factors to support professionals working with parents.

Identifying pregnant women who smoke and providing evidence based support to stop is essential.

Ideally, reductions in smoking during pregnancy will be achieved by women entering pregnancy smokefree. Therefore targeting smokefree messages to young adults, encouraging quitting and changing social and community norms in these groups is an important part of achieving and sustaining this.

## CONCLUSIONS

- There are higher rates of smoking in young people than the general population, though all age groups have seen a decline in smoking rates between 2012 and 2017.
- White men and women age 18-34 years have higher rates of smoking than the general population aged 18-34.
- Young White men in the most deprived group have seen a large decrease in smoking prevalence between 2012 and 2017, but the number of current smokers remains significantly higher than their counterparts living in the lesser deprived areas.
- Young White routine and manual workers are the most likely group to smoke, with rates more than double that of managerial and professional workers for both men and women.
- By region there was higher smoking prevalence in young White routine and manual workers England-wide but not specific to one particular area, though men in London and women in Yorkshire and the Humber have the highest rates.
- This data can be used to target the groups with the highest smoking rates with stop smoking interventions in order to reduce smoking prevalence in the general population as a whole and ultimately help to reduce smoking in women who become pregnant.

## REFERENCES

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