



Economic and Social Data Service

Using the Health Survey for England to carry out research on smoking

ESDS Government

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The Health Survey for England

The Health Survey for England (HSE) is sponsored by the Department of Health to provide better and more reliable information about various aspects of people's health. The HSE began in 1991 and has been carried out annually since then. It combines questionnaire-based answers with physical measurements and the analysis of blood samples. An interview with each eligible person in the household is followed by a nurse visit.

The measurement of smoking in the Health Survey for England

Smoking questions are included in the 'core' element of the survey and, as such, are asked every year. Other core elements include blood pressure, height and weight, drinking and general health.

In 2003, for those aged 25 and over, the questions below were asked. Although many of the smoking questions and methodology have remained the same since 1991, there may be some slight differences between 2003 and previous years.

Questions:

- Current smoking status
- The number and type of cigarettes smoked by current smokers
- Past smoking behaviour
- Desire to give up smoking
- Medical advice to stop smoking
- Exposure to second hand smoke
- Smoking behaviour when pregnant

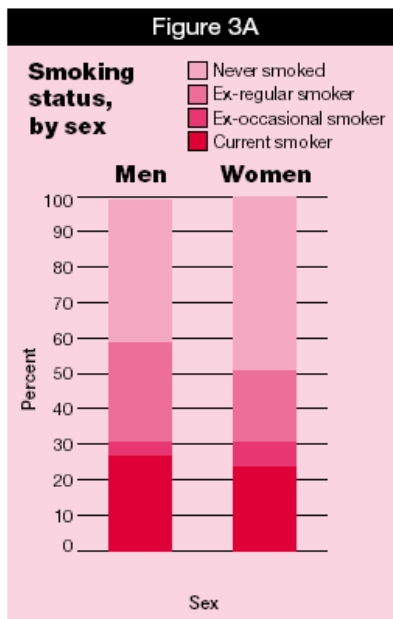
Those aged 16 and 17 answer a reduced set of questions via a self-completion questionnaire. Those aged 18-24 could answer the question in the interview or through self-completion. The self-completion questionnaire focuses upon current smoking status, the number and type of cigarettes smoked by current smokers and parental smoking behaviour when the informants were children.

An added bonus of the HSE is that a saliva sample is taken from respondents during the nurse visit. This can be used to measure the level of cotinine in a respondent's saliva. Cotinine is a major metabolite of nicotine and is considered to be a valid measure of nicotine intake.

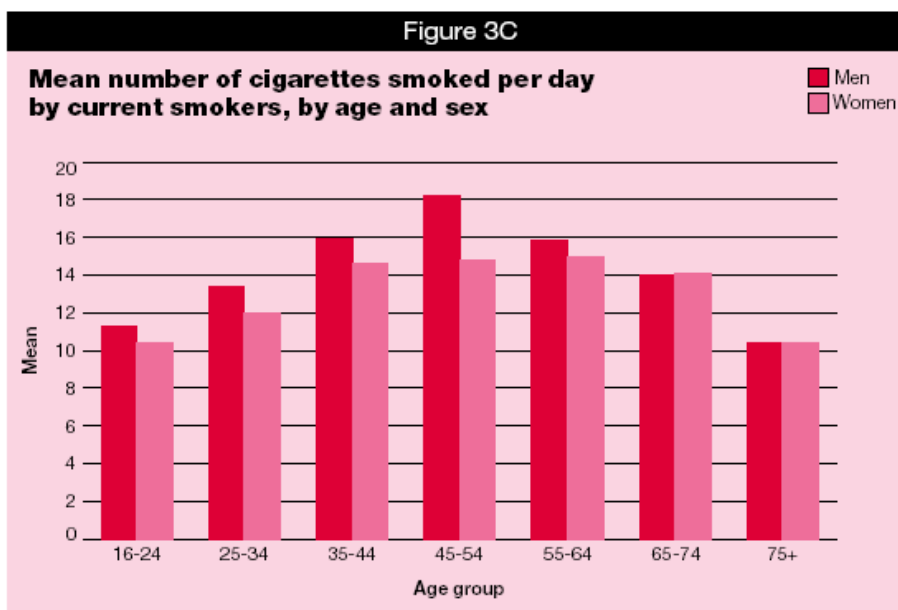
Findings from the 2003 report

The latest published HSE results are from 2003 and contain some interesting results about smoking. Some of the key findings are shown below.

In 2003, 27% of men and 24% of women reported that they were current smokers. Of these, 33% of men and 27% of women smoked 20 or more cigarettes per day. Among current smokers men aged 45-54 and women aged 55-64 smoked the most heavily.



Source: Health Survey for England, 2003



Source: Health Survey for England, 2003

Multivariate logistic regression demonstrated that age, NS-SEC of household reference person and equivalised household income quintile were significantly associated with smoking prevalence.

Table 3.12

Estimated odds ratios for prevalence of cigarette smoking

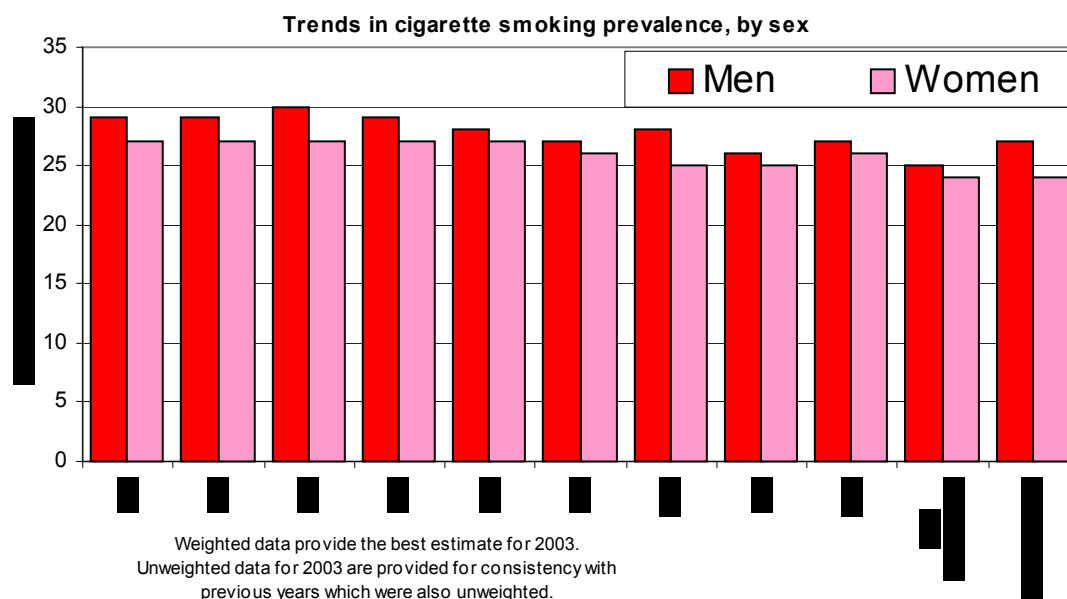
Aged 16 and over 2003

Variable	N	Odds ratio	95% C.I. ^a	Variable	N	Odds ratio	95% C.I. ^a
Males <i>Base (weighted) 7148</i>				Females <i>Base (weighted) 7598</i>			
Age (p<0.001)				Age (p<0.001)			
16-24	1005	1		16-24	1008	1	
25-34	1272	1.42	1.15, 1.77	25-34	1284	1.06	0.88, 1.29
35-44	1413	1.10	0.88, 1.37	35-44	1439	1.03	0.84, 1.25
45-54	1181	0.66	0.52, 0.83	45-54	1199	0.88	0.72, 1.09
55-64	1042	0.60	0.47, 0.76	55-64	1071	0.68	0.55, 0.84
65-74	731	0.28	0.21, 0.36	65-74	814	0.37	0.29, 0.47
75+	504	0.15	0.10, 0.22	75+	783	0.20	0.15, 0.26
NS-SEC of household reference person (p<0.001)				NS-SEC of household reference person (p<0.001)			
Managerial & professional	2918	1		Managerial & professional	2888	1	
Intermediate	501	1.29	1.01, 1.66	Intermediate	711	1.61	1.31, 1.97
Small employers & own account workers	828	1.65	1.33, 2.06	Small employers & own account workers	755	1.37	1.10, 1.69
Lower supervisory & technical	964	1.77	1.47, 2.15	Lower supervisory & technical	873	1.52	1.23, 1.88
Semi-routine & routine	1809	1.99	1.67, 2.38	Semi-routine & routine	2152	2.13	1.81, 2.51
Others/not known	129	1.51	0.92, 2.46	Others/not known	221	1.47	1.01, 2.13
Equivalised household income quintile (p<0.001)				Equivalised household income quintile (p<0.001)			
Highest	1387	1		Highest	1170	1	
2nd	1408	1.04	0.85, 1.26	2nd	1357	1.08	0.87, 1.33
3rd	1277	1.23	1.00, 1.52	3rd	1416	1.22	0.99, 1.52
4th	963	1.41	1.12, 1.78	4th	1134	1.48	1.17, 1.88
Lowest	1026	1.88	1.49, 2.36	Lowest	1283	1.69	1.35, 2.13
Question not answered	1087	1.39	1.12, 1.73	Question not answered	1239	1.07	0.84, 1.36

^a Confidence interval.

Source: Health Survey for England, 2003

Analysis of smoking prevalence since 1994 suggests that there has been a gradual decline in the proportion of adults currently smoking.



Source: Health Survey for England, 2003

Secondary analysis

The HSE collects valuable information about smoking and related factors and it offers secondary analysts a wealth of data with which to explore further. Professor Martin Jarvis, University College London, has used the HSE data extensively to look in more detail at smoking behaviour. Summaries of two of his research projects are shown below.

(1) Professor Jarvis used data from the 1994 and 1996 HSE to examine passive smoking in the home among non-smoking adults who were married to or cohabiting with a smoker. Passive smoking was measured from the cotinine results and smoking status was measured from the response to interview questions.

Key results included:

- cotinine concentrations in the non-smoking member of a couple were strongly related to the partner's smoking behaviour, rising from a geometric mean of 0.31 ng/ml when the partner was also a non-smoker to 1.99ng/ml when the partner smoked 30 or more cigarettes a day;
- stepwise multiple linear regression analysis showed that age, sex, socio-economic disadvantage, season of the year at which measurements were taken, region, smoking history, presence of other smokers in the household and marital status were significantly associated with exposure after adjustment for other predictors;
- however, partner's cigarette consumption was the main predictor, confirming that smoking by partners in the home is a major source of non-smoking adults' exposure to passive smoking. (Jarvis, M. et al, 2001a).

(2) Professor Jarvis used the 1998 HSE to examine adult smokers who smoked manufactured cigarettes and the relationship between the nicotine yield of self-selected cigarette brands and nicotine intake as indexed by saliva cotinine concentrations.

Key results included:

- at any given yield there was a wide variation in cotinine concentrations between subjects. This was so whether subjects were smoking brands with low or high nicotine yields and shows that, at any level of yield, smokers could, and did, achieve high nicotine intakes;
- overall there was a small but statistically significant correlation between brand nicotine yield and cotinine;
- smokers of cigarette brands with lower nicotine yields differed from those choosing cigarettes with higher nicotine yields in terms of both demographics and cigarette consumption;
- after controlling for demographics and cigarette consumption in multiple regression analysis, the slope relating nicotine yield and cotinine concentrations among all smokers was shallow but remained statistically significant.

The results confirmed that nicotine yields of cigarettes are poor predictors of nicotine intake of smokers. Since tar and nicotine deliveries are highly correlated, this indicated that there is little difference, on average, between tar exposure in smokers of low and high nicotine-yielding brands and calls into question the magnitude of the potential reduction in health risk obtained by smoking low tar and nicotine brands. (Jarvis, M. et al, 2001b)

References

Jarvis, M., Feyerbrand, C., Bryant, A., Hedges, B, and Primatesta, P. (2001a) *Passive smoking in the home: plasma cotinine concentrations in non-smokers with smoking partners*, Tobacco Control, 2001; 10: 368-374.

Jarvis, M., Boreham, R., Primatesta, P., Feyerbrand, C., and Bryant, A. (2001b) *Nicotine yield from machine-smoked cigarettes and nicotine intakes from smokers: evidence from a representative population survey*, Journal of the National Cancer Institute, Vol.93, No.2, January 2001.

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