Public Health England

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Can social inequalities explain differences in smoking prevalence by wellbeing measures?
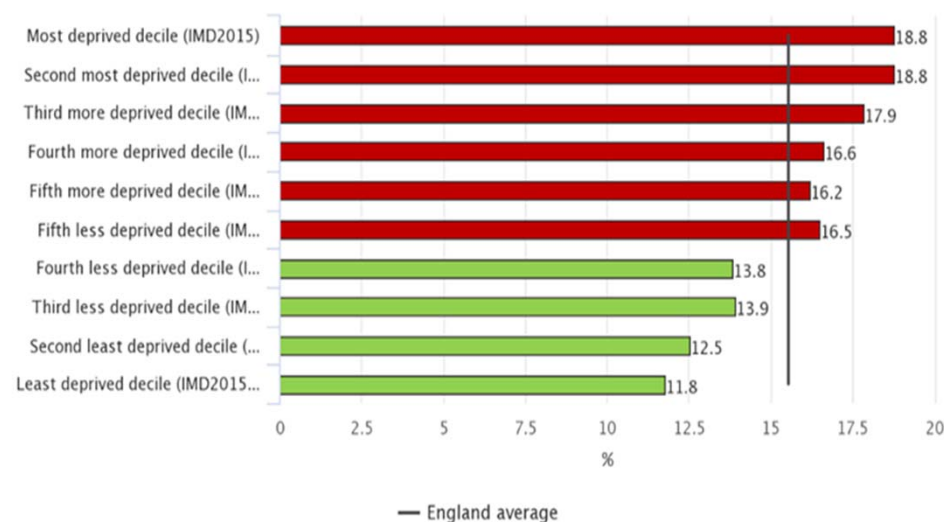
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Background

- Smoking is a modifiable lifestyle risk factor and effective tobacco control measures can reduce the prevalence of smoking in the population.

- Survey data has shown that smoking prevalence varies between social groups.

Category	Group	Sample size	Current smokers		
			%	*LCI*	*UCI*
All respondents		109,157	**15.62**	*15.40*	*15.83*
Sex	males	49,009	**16.63**	*16.30*	*16.96*
	female	60,148	**14.76**	*14.48*	*15.04*
Age group	18-34 years	19,928	**21.54**	*20.97*	*22.11*
	35-44 years	17,394	**18.14**	*17.57*	*18.72*
	45-54 years	20,302	**17.47**	*16.95*	*17.99*
	55-64 years	19,923	**14.77**	*14.28*	*15.27*
	65-74 years	20,156	**10.24**	*9.82*	*10.66*
	75+ years	11,454	**5.25**	*4.84*	*5.65*

Smoking Prevalence in adults – current smokers (APS) – England, 2016 – Data partitioned by County & UA deprivation deciles in England (IMD2015)

Decile	%
Most deprived decile (IMD2015)	18.8
Second most deprived decile (I...	18.8
Third more deprived decile (IM...	17.9
Fourth more deprived decile (I...	16.6
Fifth more deprived decile (IM...	16.2
Fifth less deprived decile (IM...	16.5
Fourth less deprived decile (I...	13.8
Third less deprived decile (IM...	13.9
Second least deprived decile (...	12.5
Least deprived decile (IMD2015...	11.8

— England average

Background

- Studies have shown that people with mental health conditions are more likely to smoke than the general public and that smoking rates increase with the severity of illness[2].

- In addition studies have shown that those smoking more than 15 cigarettes a day are more likely to experience a common mental health disorder than those who smoke fewer cigarettes or do not smoke at all[3]

- 40% of cigarettes smoked in England are smoked by people with a mental health problem[4].

Methods

We analysed responses to the question 'Do you smoke cigarettes at all nowadays?' from the APS for England residents aged 18 and over, alongside the four wellbeing questions:

- overall, how satisfied are you with your life nowadays?

- overall, to what extent do you feel the things you do in your life are worthwhile?

- overall, how happy did you feel yesterday?

- overall, how anxious did you feel yesterday?

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Exclusions

The following were excluded from the analysis:

- age less than 18

- the respondent did not live in England

- no valid response was recorded for smoking status

- No valid response for the four wellbeing variables.

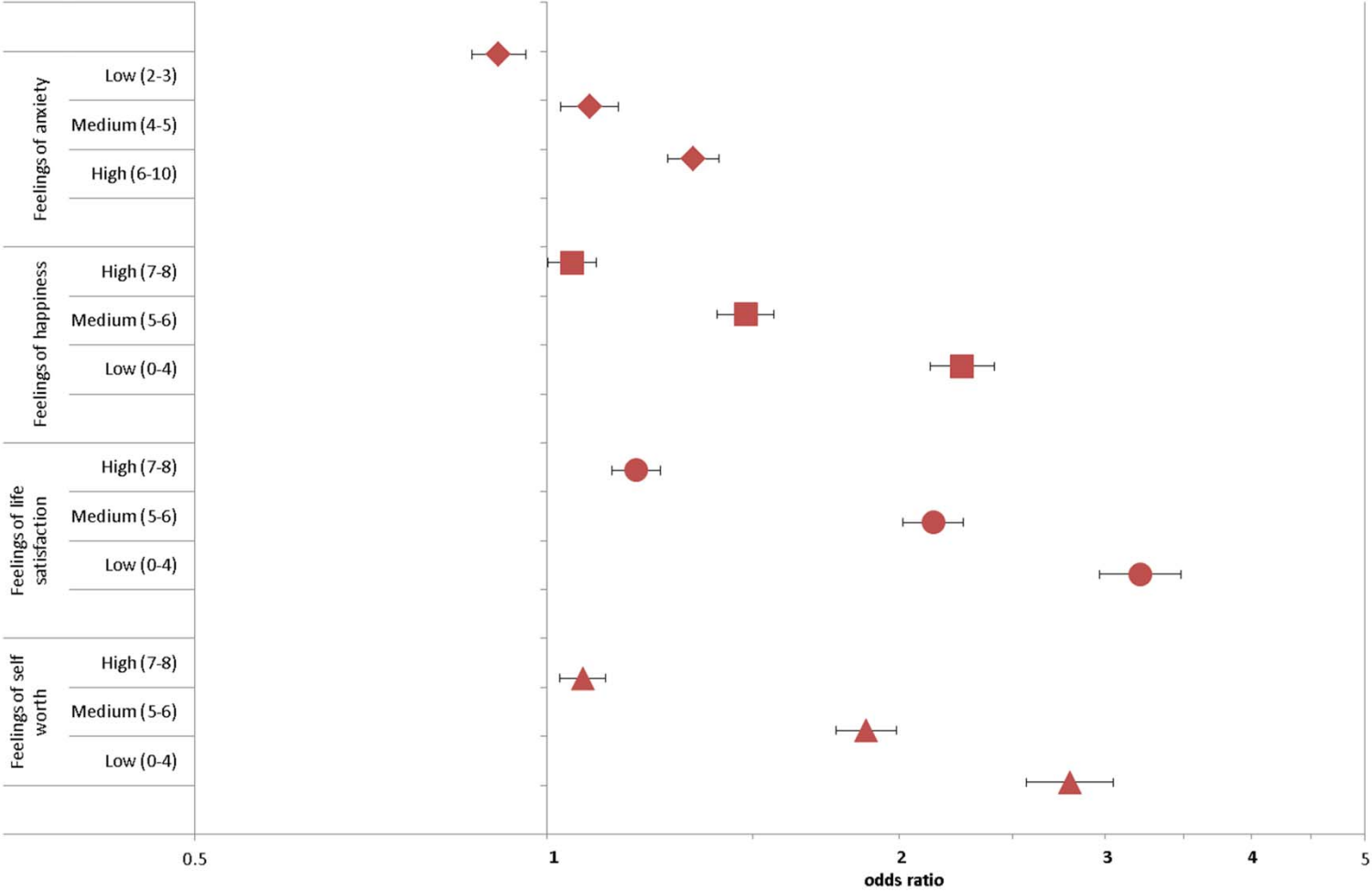After exclusions 109,157 respondents were included in the analysis.

Methods

- Simple logistic regression to explore the differences between different levels within each wellbeing variable, comparing to the highest wellbeing group as the reference (Odds ratio = 1).

- Multiple logistic regression (adjusting for sex, age, occupation, marital status and employment status)

- Each wellbeing variable was considered individually.
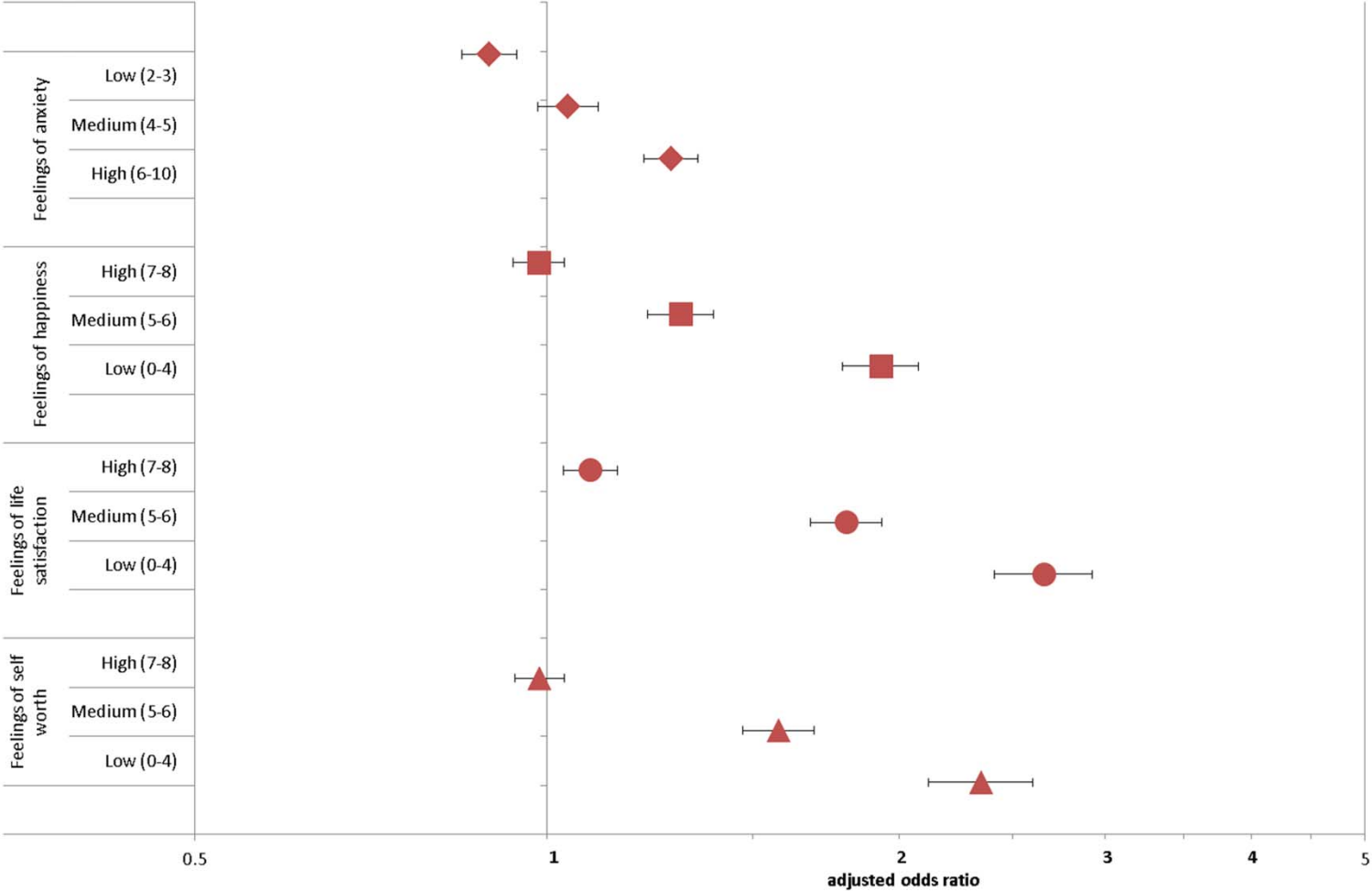

- Analysis carried out in Stata

Smoking prevalence

Category	Group	Sample size	Current smokers %	LCI	UCI
All respondents		109,157	**15.62**	15.40	15.83
Feelings of anxiety	Very low (0-1)	44,304	**14.91**	14.57	15.24
	Low (2-3)	24,946	**13.74**	13.32	14.17
	Medium (4-5)	17,887	**16.01**	15.47	16.54
	High (6-10)	22,020	**18.95**	18.43	19.46
Feelings of happiness	Very High (9-10)	38,634	**13.46**	13.12	13.80
	High (7-8)	43,381	**14.04**	13.72	14.37
	Medium (5-6)	17,517	**18.69**	18.11	19.27
	Low (0-4)	9,625	**26.05**	25.17	26.92
Feelings of life satisfaction	Very High (9-10)	32,683	**12.22**	11.87	12.58
	High (7-8)	55,831	**14.24**	13.95	14.53
	Medium (5-6)	15,361	**22.96**	22.30	23.63
	Low (0-4)	5,282	**30.92**	29.68	32.17
Feelings of self worth	Very High (9-10)	39,170	**13.48**	13.14	13.82
	High (7-8)	52,601	**14.33**	14.03	14.63
	Medium (5-6)	13,297	**22.60**	21.89	23.31
	Low (0-4)	4,089	**30.37**	28.96	31.78

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Odds ratios - unadjusted

Odds ratios – adjusted

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Anxiety

		Unadjusted			adjusted for sex, age, routine & manual occupations, marital status and employment status		
		OR	LCI	UCI	OR	LCI	UCI
Feelings of anxiety	Very low (0-1)	1.00			1.00		
	Low (2-3)	0.91	0.86	0.96	0.89	0.85	0.94
	Medium (4-5)	1.09	1.03	1.15	1.04	0.98	1.11
	High (6-10)	1.33	1.27	1.40	1.28	1.21	1.34
Medium (4-5)		15,064		16.01			
High (6-10)		17,930		18.95			

Happiness

		Unadjusted			adjusted for sex, age, routine & manual occupations, marital status and employment status		
		OR	LCI	UCI	OR	LCI	UCI
Feelings of happiness	Very High (9-10)	1.00			1.00		10
	High (7-8)	1.05	1.00	1.10	0.99	0.94	1.03 56
	Medium (5-6)	1.48	1.40	1.56	1.30	1.23	1.38 41
	Low (0-4)	2.27	2.13	2.41	1.93	1.81	2.06

Medium (5-6) 14,559

Low (0-4) 7,177 **26.05**

Life satisfaction

		Unadjusted			adjusted for sex, age, routine & manual occupations, marital status and employment status		
		OR	LCI	UCI	OR	LCI	UCI
Feelings of life satisfaction	Very High (9-10)	1.00			1.00		5
	High (7-8)	1.19	1.14	1.25	1.09	1.04	1.15 7
	Medium (5-6)	2.14	2.02	2.27	1.80	1.70	1.92 8
	Low (0-4)	3.21	2.97	3.48	2.66	2.45	2.89

Low (0-4)   3,704   **30.92**

Self worth

		Unadjusted			adjusted for sex, age, routine & manual occupations, marital status and employment status		
		OR	LCI	UCI	OR	LCI	UCI
Feelings of self worth	Very High (9-10)	1.00			1.00		
	High (7-8)	1.07	1.03	1.12	0.99	0.94	1.03
	Medium (5-6)	1.87	1.77	1.99	1.58	1.48	1.68
	Low (0-4)	2.80	2.57	3.05	2.35	2.15	2.57

Low (0-4)   2,838   **30.37**

Summary

- Strong associations can be found between smoking prevalence and sex, age, occupation, marital status and employment status.

- The four wellbeing variables explored in the APS demonstrate a clear association with smoking prevalence, with clear gradients in the odds of smoking increasing as self-perceived wellbeing decreases.

- When personal characteristics are accounted for, the odds of smoking are reduced but remain significantly higher in the lowest wellbeing groups, compared with the highest.

- All the logistic regression models fit the data significantly well, and more investigation is needed to determine if the inclusion of other factors would improve the fit further.

Further analysis

Further analysis will look at

- interactions between the wellbeing variables,

- exploring creating an overall wellbeing variable by combining the results of the four current questions,

- exploring whether other factors such as general health contribute at all to the odds of smoking.

Discussion

- Smoking rates are associated with mental wellbeing although it is not known which is the cause or effect.

- Although the wellbeing variables in the APS cannot be considered indicators of serious mental illness or depression, anxiety, happiness, life satisfaction and self-worth can be considered for low level severity mental health conditions and "form part of a much wider initiative in the UK, and internationally, to look beyond Gross Domestic Product (GDP) and to measure what really matters to people"[5]

- It is well documented that people with a mental health condition are likely to die 10-20 years younger than other people, and the single largest reason for this is smoking[4]. Therefore if smoking rates were reduced in this group, other health outcomes may also improve.

- More generally, smokers often believe that smoking is an aid for reducing stress. However, there is some evidence that smoking increases levels of anxiety and stress [2].

References

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2. ASH smoking and mental health factsheet http://ash.org.uk/information-and-resources/fact-sheets/smoking-and-mental-health/

3. Royal College of Physicians smoking and mental health report https://shop.rcplondon.ac.uk/products/smoking-and-mental-health?variant=6638049733

4. Royal College of Physicians smoking and mental health leaflet http://www.rcpsych.ac.uk/healthadvice/problemsdisorders/smokingandmentalhealth.aspx

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Any questions?

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