

Changes in social environments and smoking among young adults during the first year of the COVID-19 pandemic: Evidence from the UK Millennium Cohort Study

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Background

Social environments are “the immediate physical surroundings, social relationships, and cultural milieus within which defined groups of people function and interact” (Barnet and Casper, 2001)

Changes in smoking behaviour during the pandemic

Jackson et al. (2021) found a 25% increase in smoking prevalence among young adults during the first lockdown

Since 2020 - more young adults tried quitting and successfully did so, but more young adults also tried cigarettes for the first time.
(West et al., 2022)

Disruption of social environments

The impacts of this on smoking behaviour and trajectories have likely changed and are currently unknown

Inform future tobacco control policies

Targeted towards the change in smoking behaviours in this age group

Research aims

- To examine the **role of changes in social environments in smoking** among **young adults** during the **first year of the pandemic**
- To examine whether these changes had **different impacts** on smoking between young adults who were **university students** and **non-university students** before the outbreak

Research objectives

In those aged 19 in the UK between May 2020 and Feb 2021:

- Examine the association between changes in lockdown measures and the risk of smoking;
- Examine the association between changes in the frequency of social activities and the risk of smoking;
- Examine if the associations for the above were modified by student status before the outbreak

Dataset: Millennium Cohort Study

Analytic sample = 2254

2001-2002

Sweep 1, age 9 months

18,818 cohort members

May-June 2020

September-October 2020

February-March 2021

1st lockdown

Restrictions lifted

3rd lockdown

2018

2020

2020

2021

Sweep 7, age 17 years

10,757 cohort members

**COVID-19
survey wave 1**

**COVID-19 survey
wave 2**

**COVID-19 survey
wave 3**

2,645 cohort
members

3,274 cohort
members

4,474 cohort
members

Methodology

Outcome variables

Smoking status (Y/N)

Explanatory variables

- Time
- Frequency of people you met out of your household in past week
- Frequency of people you helped out of your household in past week

Key modifier

Student status

Covariates

Time-invariant covariates:

- At baseline: Ethnicity, home ownership, parents' smoking status
- At age 17: Cohort members' smoking status, binge drinking in the last 12 months, psychological distress, long-standing illness
- At age 19-20: Sex, country of residence,

Time-varying covariates

- At age 19-20: Relationship status, living arrangements with parents

Modelling strategy

- Analyses were conducted using random-intercept Poisson regressions in the complete case sample of **5,595 observations** from **2,254 participants**
- Adjusted using non-response weights provided in Wave 3 of the COVID-19 survey

Table 1. Summary of modelling strategy

Model 1	Time
Model 2	Time + time-varying covariates
Model 3	No. of days participants met someone outside their household + time
Model 4	No. of days participants met someone outside their household + time + time-varying covariates
Model 5	No. of days participants helped someone outside their household + time
Model 6	No. of days participants helped someone outside their household + time + time-varying covariates
Model 7 (Full)	No. of days participants met someone outside their household + No. of days participants helped someone

* All models include time-invariant covariates + time + time-varying covariates

Model findings

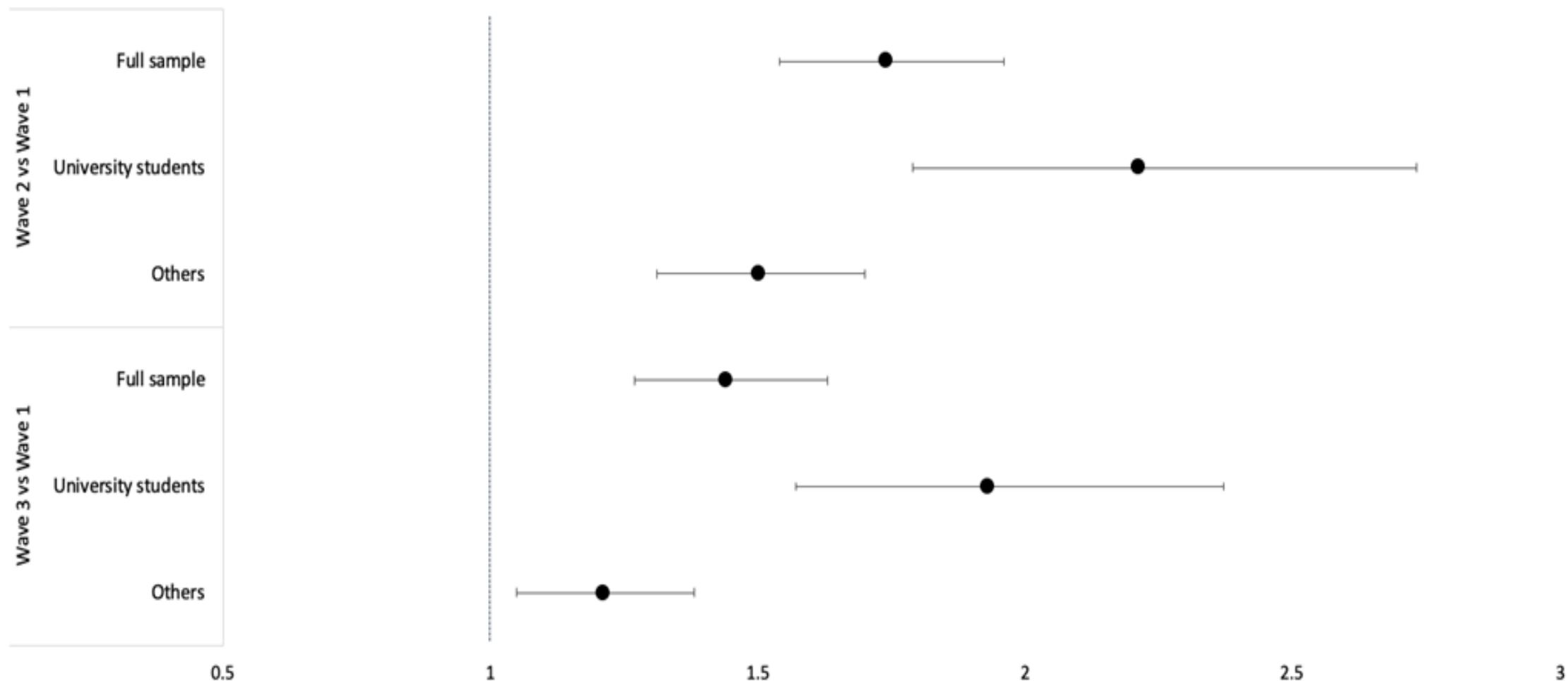
Young adults were more likely to smoke over time as COVID-19 regulations eased:

- Compared with the first national lockdown in May 2020, young adults were **74%** more likely to smoke in **September 2020 (95%CI 1.54-1.96)** and **44%** more likely in **February 2021 (95%CI 1.27-1.63)**.

Young adults who socialised more frequently were at higher risk of smoking compared to those who did not:

- Participants who **met people two or more days per week** were **more likely to smoke** than those who did not meet people (**PR = 1.43, 95%CI 1.23-1.67**).
- The frequency at which participants helped others was not associated with smoking.

Figure 1: Changes in the risk of smoking among UK young adults over time, stratified by student status before the pandemic. MCS, 2020-21.



Limitations

- **Low response rate** limits claim of representativeness
- Having **more waves at other time points** may have yielded another portrait of changes over time
- We would ideally have liked to measure the **places** in which MCS participants were meeting and helping other people

Conclusions

- The different social environments during the first year of the pandemic have played a key role in shaping the smoking behaviour of young adults
- This study highlighted differences in the risk of smoking across educational trajectories
- The easing of restrictions in September-October 2020 and February-March 2021 were more conducive to smoking among university students than non-university students
- These findings contribute to a growing body of work that highlights the magnitude of fluctuations in the risk of smoking among young adults since the start of the pandemic, and the importance of place-based interventions where young adults may be more susceptible to smoking

References

- Barnett E, Casper M. A definition of “social environment”. *Am J Public Health*. 2001;91(3):465. doi:10.2105/ajph.91.3.465a
- Jackson SE, Beard E, Angus C, Field M, Brown J. Moderators of changes in smoking, drinking and quitting behaviour associated with the first COVID-19 lockdown in England. *Addiction*. 2021;n/a(n/a). doi:<https://doi.org/10.1111/add.15656>
- West, R., Kock, L., Kale, D. and Brown, J., 2022. *Top-line findings on smoking in England from the Smoking Toolkit Study*. [online] [Smokinginengland.info](https://smokinginengland.info). Available at: <<https://smokinginengland.info/graphs/top-line-findings>> [Accessed 7 July 2022].

Thank you for listening!

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	PR	95CI												
Time														
Wave 1 (ref.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Wave 2	1.74	1.54 – 1.96	1.70	1.51 – 1.91	1.43	1.25 – 1.64	1.39	1.22 – 1.60	1.74	1.55 – 1.97	1.71	1.51 – 1.93	1.40	1.22 – 1.62
Wave 3	1.44	1.27 – 1.63	1.42	1.25 – 1.61	1.31	1.16 – 1.49	1.29	1.14 – 1.47	1.45	1.27 – 1.65	1.43	1.26 – 1.63	1.30	1.14 – 1.48
Meeting people														
Never (ref.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1 day	—	—	—	—	1.13	0.97 – 1.31	1.14	0.98 – 1.32	—	—	—	—	1.14	0.98 – 1.32
2+ days	—	—	—	—	1.43	1.23 – 1.67	1.45	1.24 – 1.69	—	—	—	—	1.44	1.23 – 1.69
Helping people														
Never (ref.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1 day	—	—	—	—	—	—	—	—	0.98	0.84 – 1.14	0.98	0.84 – 1.14	0.98	0.84 – 1.14
2+ days	—	—	—	—	—	—	—	—	1.10	0.94 – 1.29	1.12	0.95 – 1.31	1.08	0.92 – 1.27
Living w/ parents														
Yes (ref.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No	—	—	1.30	1.09 – 1.55	—	—	1.29	1.09 – 1.54	—	—	1.30	1.09 – 1.55	1.30	1.09 – 1.54
Partnership														
No partner (ref.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Partner	—	—	0.79	0.69 – 0.91	—	—	0.78	0.68 – 0.90	—	—	0.79	0.69 – 0.91	0.78	0.68 – 0.90

N participants = 2,254; N obs = 5,595.

Estimates are prevalence ratios (PR) from random-intercept Poisson models representing the different relative risk of being a smoker across categories.

95CI = 95% confidence interval. Bolded estimates are significant at the .05 level.