Methods Among 652,880 women with their first antenatal (booking) appointment recorded in the national Maternity Services Dataset between April 2018 and March 2019, 514,227 (78.8%) had valid data on all relevant variables and were included in analysis. Women reported their smoking status (including prior cessation), age and ethnicity. Level of deprivation was based on postcode and expressed as the Index of Multiple Deprivation. Descriptive analyses examined differences in smoking status by age, ethnicity and level of deprivation (deciles). Proportions were mutually adjusted for sociodemographic characteristics, and chi-square tests determined statistical significance.

Results Women had a mean age of 29.8y (SD 5.7), a median gestational age of 9.7 weeks at booking (interquartile range 8.4–11.4) and 35.6% were pregnant for the first time. Almost 1 in 4 women (23.5%) smoked 12 months before conception, 20.8% smoked around conception and 13.1% at booking. Smoking 12 months before conception was highly prevalent in women aged <20y (45.3%) and decreased to 16.5% in those aged ≥35y. The proportion who smoked before conception also decreased across level of deprivation, from 36.1% (most deprived areas) to 15.5% (least deprived). Asian (Chinese/South Asian/other Asian) (4.8%) and black women (10.1%) were less likely to smoke before conception compared with women of white (28.2%), mixed (24.3%) and other (14.0%) ethnicity. Among women who smoked before pregnancy, 14.5% quit during the 12 months before conception and 29.5% between conception and booking. Women aged ≥35y were nearly twice as likely to quit before conception as women aged <20y (17.0% vs 10.2%), but not more likely to quit in early pregnancy (28.6% vs 28.9%). Women living in the least deprived areas were three-times more likely to quit before conception than women in the most deprived areas (23.7% vs 7.8%), and twice as likely to quit in early pregnancy (41.3% vs 19.0%). All comparisons were significant at p<0.0001.

Conclusion Smoking before and during pregnancy remains common among women in England, and socio-demographic differences in smoking cessation are most pronounced before pregnancy. This suggests targeted efforts are needed to reduce smoking uptake and/or increase cessation support, particularly for younger women of reproductive age, those living in the most deprived areas, and women of white and mixed ethnicity.

extent to which these are effective in generating uncertainty in the mind of the public is unknown. This study aimed to assess the effects of industry and industry-sponsored messages on public understanding across a range of harmful products.

Methods We identified examples of industry-funded alternative causation arguments from the published literature focusing on (i) smoking and lung cancer; (ii) alcohol and breast cancer; (iii) alcohol and pregnancy harms; (iv) sugar-sweetened beverages and obesity; and (V) fossil fuels and climate change. Anonymized Qualtrix panel respondents were randomly assigned to be exposed to either a message on the risk in question from one of four industry-funded organizations (exposure), or one of four independent organizations (un-exposed). Participants were asked about the level of their prior knowledge on the topic before responding, along with age, gender and education level. We ran logistic regression models within each set of argument topics to examine the binary outcome of 'uncertain/certain it doesn't increase risk' vs 'certain it does increase risk' in industry vs non-industry texts. We then pooled the results together in a random-effects meta-analysis.

Results In total, across all paired comparisons, n=3284 respondents received industry text and n=3297 received non-industry text. Exposure to industry messages led to significantly greater uncertainty compared to non-industry messages [Odds ratio (OR) 1.60, confidence interval (CI) 1.28–1.99]. Effect size was greater among those who self-rated as not/slightly knowledgeable (OR 2.24, CI 1.61 – 3.12), or moderately knowledgeable (OR 1.85, CI 1.38–2.48) compared to those very/extremely knowledgeable OR 1.28 (1.03–1.60). Analysis by industry revealed similar trends.

Conclusion This novel randomized controlled study demonstrates that exposure to messages from industry-sponsored organisations significantly increase uncertainty regarding the risk of climate change, sugar sweetened beverages, tobacco and alcohol. The difference in groups was predominantly due to more respondents reporting uncertainty. This evidence brings into question whether industries who produce harmful products and those in receipt of their funding should be permitted to communicate with the public about the harmful impacts and health risks, considering the effect, and the scale of these interventions. More broadly, policy-makers seeking to improve public understanding of risk and policy, should be aware of the spread and potency of commercially driven misinformation.

| OP70 | **MERCHANTS OF DOUBT: A RANDOMIZED CONTROLLED TRIAL OF RESPONSES TO INDEPENDENT VS INDUSTRY-FUNDED MESSAGING ON THE HARMS OF ALCOHOL, CLIMATE CHANGE, TOBACCO AND SUGAR SWEETENED BEVERAGES** |

[1]Nason Maani*, [2]May CIVan Schalkwyk, [3]Filippos Filippidis, [2]Cecile Knai, [1]Mark Petticrew. [1]Public Health, Environments and Society, London School of Hygiene and Tropical Medicine, London, UK; [2]Health Services Research and Policy, London School of Hygiene and Tropical Medicine, London, UK; [3]Primary Care and Public Health, Imperial College London, London, UK

Background As evidenced by research on tobacco industry documents, messages that seed uncertainty about product harms helped create more positive public attitudes attitudes towards industry, reduce support for regulation, and deflect potential litigation. There is mounting evidence that other harmful product industries engage in similar tactics, but the

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| OP71 | **A SPATIAL ANALYSIS OF THE TOBACCO RETAIL ENVIRONMENT AROUND PUBLIC SCHOOLS IN SHANGHAI, CHINA** |

Chunyu Zheng*, Zhiqiang Feng, Jamie Pearce. *School of Geosciences, University of Edinburgh, Edinburgh, UK*

Background Most smokers begin using tobacco before the age of 18. In China, the prevalence of experimental smoking among adolescents aged between 13–15 was 12.9% (2019). Greater access to tobacco retail has been identified as a major cause of earlier smoking initiation amongst this age group. This study examined the distribution of tobacco retailers around public schools in Shanghai, China, determining whether there was evidence of retailer clustering around schools and whether there is evidence of non-compliance with

the spatial restriction prohibiting tobacco retail within 50m from school areas.

Methods Tobacco retailers (n=19,413) were extracted from a web-scrapped Points of Interest database in 2019. Using GIS analysis, for all public schools (n=1483) across Shanghai, the distribution of tobacco retailers around the main entrance of public schools were calculated using the number and proportion of tobacco retailers within 5 and 10-min walking road network distances around public schools. The degrees of clustering of tobacco retailers within 5 and 10-min walking distances from public schools were determined using multitype K-function. The non-compliance with spatial restriction was examined using the proportion of public schools with at least one tobacco retailer around. The stratified analysis was also carried out by types of schools, levels of urbanity, and school deprivation, and types of tobacco retailers.

Results Within 10-min walking distance, 95.8% of public schools were exposed to tobacco retail, 59.99% of all tobacco retailers were in the vicinity of a school. Greater proportions of tobacco retailers were found around primary schools (45.9%) and schools in more urbanised areas (97.3%). Significant spatial clustering of tobacco retailers was found around public schools within 5 and 10-min walking distance with higher degrees of clustering around high schools and secondary schools, while the clustering pattern of tobacco retailers around public schools was insignificant in more urbanised areas. 5.87% of public schools were exposed to non-compliant tobacco retailers. A greater proportion of primary schools (6.8%) were found with non-compliant tobacco retailers compared to high schools (3.98%) and secondary schools (2.1%). 12.19% of public schools in more urbanised areas were exposed to non-compliant tobacco retailers. Differences in levels of school deprivation were insignificant. Among types of tobacco retailers around school areas, the convenience store was the most available type.

Conclusion Tobacco retail availability within walking distances from public schools of Shanghai was high, particularly in more urbanised areas. The current spatial restriction on tobacco retail around public school areas is proving insufficient to protect adolescents.

OP72 **THE ROLE OF SOCIOECONOMIC DISPARITIES IN COGNITIVE AGEING: A CROSS-COUNTRY COMPARISON BETWEEN ENGLAND AND CHINA**

[1]Dorina Cadar*, [1]Laura Brocklebank, [2]Li Yan, [2]Yaohui Zhao, [1]Andrew Steptoe. [1]Behavioural Science and Health, University College London, London, UK; [2]China Center for Economic Research, Peking University, Guangzhou, P.R. China

Background In the context of rapidly ageing populations worldwide, this study aims to investigate a cross-country comparison of the relationship between various socioeconomic markers such as education, household wealth, and urbanicity with cognitive decline over 8 years in England and China.

Methods We used data from 7,200 adults aged 50+ from the English Longitudinal Study of Ageing (ELSA) and Chinese Health and Retirement Longitudinal Study (CHARLS), national representative samples of English and Chinese populations. ELSA and CHARLS are similar in their study design and have comparable measures at each wave. For these analyses, we used the available data spanning over 8 years across ELSA wave 5 (20010/11) to wave 9 (2018/19); and CHARLS waves 1 (2011) to 4 (2018). The outcome was the change in memory assessed over time using immediate and delayed 10-word recall tests (max score 20) over 4 waves at every two-year follow-up within each of the two cohorts. We measured socioeconomic status at baseline, including individual-level (education and wealth) and area-based characteristics (urban/rural) with similar comparable measures within each cohort. Educational attainment was similarly classified into three categories: below A-level, A-levels or equivalent, and university degree. Total housed wealth was classified into quintiles. The associations between each SES marker and cognitive decline over an 8-year follow-up were examined by linear mixed models assessed comparatively within each country.

Results In English adults, we found a significant protective association between higher levels of education and baseline memory (intercept beta (β) =7.8, standard errors (SE)=0.15) with a β =1.9, SE=0.9 higher memory scores for those with vocational training and β =2.9, SE=0.2 for those with a degree. A slower decline in memory over time was observed for those with intermediary education β =0.6, SE=0.2 independent of all covariates. These associations were similar across countries but with more robust protections for those with intermediate levels of education in the Chinese population compared to England. Lastly, there was a significant positive association between living in an urban area and higher baseline memory with β =0.9, SE=0.6 and slower memory decline over time β =0.6, SE=0.1, particularly in China, but not in England. No associations were found with the level of wealth.

Conclusion These results imply that a socioeconomic advantage in terms of higher education at the individual level was associated with a slower memory decline over almost a decade both in England and China, with a most pronounced difference in participants living in rural China. Public health strategies for preventing cognitive decline should target socioeconomic gaps to reduce health disparities and protect those particularly disadvantaged.

Friday 17 September

Inequalities, 13.00 - 15.30

OP73 **LOCAL HOUSING SERVICES SPENDING AND PREMATURE MORTALITY IN ENGLAND: A LONGITUDINAL ECOLOGICAL STUDY***

Alexandros Alexiou*, Kate Mason, David Taylor-Robinson, Ben Barr. Public Health Policy and Systems, University of Liverpool, Liverpool, UK

Background The UK 2008 financial crisis led to austerity measures being introduced in the UK, severely affecting local government. Cuts to central government funding have led to reduced income for spending on local services that potentially promote health, such as housing services. Housing services include a variety of critical services targeted at providing homelessness prevention and relief. There is an extensive body of evidence demonstrating an association between housing, homelessness and poor health. We investigate whether those areas that experienced a greater decline in housing services