

**Methods** Longitudinal data from the annual British Household Panel Survey and Understanding Society (1994–2016) were examined with discrete-time event history analyses. 14 992 youths contributed data for up to five observations (67 556 person-years) representing ages 11–15 years, with data right-censored at the year of smoking initiation (or age 15). We examined associations between smoking ban implementation (2006 for Scotland, 2007 for other UK countries) and youth smoking initiation (i.e. trying smoking for the first time), before and after adjustment for parental smoking, and tested for interactions between parental smoking and the ban implementation. Multiple imputation was used to handle missing data. Analyses were adjusted for youth sex, age, UK country, socioeconomic status, and temporal trends in initiation.

**Results** Youth initiation of smoking was less likely after the implementation of the smoke-free legislation than before (OR: 0.16; 95% CI 0.14 to 0.18), and this difference further increased with each year after implementation (OR per year after the ban: 0.88; 95% CI 0.82 to 0.94). Adjustment for parental smoking only marginally attenuated the association with ban implementation (OR: 0.20; 95% CI 0.16 to 0.24) and the per-year decrease after the ban (OR: 0.86; 95% CI 0.80 to 0.92) was similar. There was an interaction between the ban implementation and parental smoking (p-value: 0.001) such that parental smoking was more strongly associated with youth smoking initiation before the ban (OR: 1.41; 95% CI 1.26 to 1.58) than after (OR: 0.92; 95% CI 0.65 to 1.32).

**Discussion** Changes in parental smoking behaviour did not seem to be a major explanation for the strong impacts of smoke-free legislation on youth smoking initiation, suggesting other mechanisms may be at work. The influence of parental smoking on youth initiation weakened after the ban which may indicate the displacement of parental smoking behaviour out of the home.

OP58

#### ASSOCIATIONS BETWEEN PARENTAL VAPING AND YOUTH SMOKING AND VAPING IN THE UK: CROSS-SECTIONAL SURVEY FINDINGS

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**Background** E-cigarette use has been rising steadily in the UK since 2011. Mounting evidence suggests e-cigarette use ('vaping') is safer than traditional cigarettes ('smoking'), and can aid smoking cessation. Nevertheless concerns are still raised that vaping may re-normalise smoking behaviour and help introduce youth to traditional cigarettes. Parental smoking is long-established as a risk factor for youth smoking, so parental vaping may be an important component of any normalisation effects of e-cigarettes on youth. We estimated associations of parental vaping with youth smoking and vaping.

**Methods** Data were from the 7th wave of the Understanding Society study, a representative annual panel study of UK households. Youth and parents self-reported current vaping and current and past smoking (parental vaping/smoking coded for any use in couples). Logistic regression analyses were conducted in STATA on 2373 youth aged 10–15 with valid data

(65% of 3635 interviewed; 51% female). Models were weighted for study non-response and adjusted for potential confounders (gender, age, UK country, ethnic minority, single parent status, parental education, occupation, income and parental smoking). Where there were interactions between parental vaping and parental smoking (never, ex or current), we estimated ORs within strata of parental smoking. With responses from previous surveys we additionally examined current smoking in youth who had never smoked before (n=2,243; i.e. initiation of smoking).

**Results** Vaping and smoking were rare among youth (3.5% and 2.3% respectively) but more youth had parents who vaped (11.6%) or were ex (39.7%) or current (24.9%) smokers. Parental vaping was not clearly associated with youth vaping after adjustment for confounders (OR: 1.86; 95% CI 0.70 to 4.96). However, associations between parent and youth vaping varied by parental smoking (p-value for interaction: 0.043) being strongest among youth whose parents were ex-smokers (OR: 4.99; 95% CI 0.94 to 26.53). After adjustment, parental vaping was not clearly associated with youth current smoking either (OR: 1.26; 95% CI 0.38 to 4.19), which held across strata of parental smoking (interaction p-value: 0.102). However, parental vaping was associated with youth smoking initiation, even after adjustment (OR: 4.63; 95% CI 1.29 to 16.58), and this too did not vary by parental smoking status (interaction p-value: 0.115).

**Conclusion** There was not strong evidence that parental vaping encouraged youth smoking or vaping overall. However, some indications of increased risk (e.g. for smoking initiation, or among youth whose parents were ex-smokers) warrant further study and monitoring to further inform regulation, especially as increasing numbers of smokers (including parents) switch to e-cigarettes.

OP59

#### #HAVE E-CIGARETTES RE-NORMALIZED OR DISPLACED YOUTH SMOKING?: A SEGMENTED REGRESSION ANALYSIS OF REPEATED CROSS SECTIONAL SURVEY DATA IN ENGLAND, SCOTLAND AND WALES

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**Background** Small yet significant impacts of e-cigarettes on population smoking cessations rates indicate promise for harm reduction. However, non-smoking young people are increasingly experimenting with e-cigarettes, and while regular use remains rare, arguments for regulation have been driven by fears that e-cigarettes re-normalize smoking. Others counter that e-cigarettes may displace youth smoking and further de-normalize it. This study tests whether the secular decline in youth smoking prevalence, as well as perceived smoking norms, slowed or accelerated during the period from 2011–2015 (when e-cigarettes were emerging but prior to recent moves to regulate their use).

**Methods** Data were taken from the Smoking Drinking and Drug Use survey in England, Health Behaviour in School Aged Children/School Health Research Network surveys in

Wales, and the Scottish Adolescents Lifestyle and Substance Use Surveys between 1998 and 2015, including 247,515 13 and 15 year-old respondents. Segmented regression analyses examined trends for smoking prevalence (ever smoking and weekly smoking) and perceived smoking norms, testing for change in trend from 2011–15. Falsifiability checks examined change in trends for alcohol use and cannabis use for the same period.

**Results** In final models for the whole sample, there was no change in rate of decline for ever smoking (OR=1.01; CI 0.99 to 1.03), with a marginally significant slowing in the rate of decline for weekly smoking (OR=1.04; CI 1.00 to 1.08). This slowing decline in weekly smoking was however limited to groups for whom rates were declining prior to 2010 at a rate which could not be sustained (i.e. girls and 13 year olds), and occurred in a greater magnitude for other substances, including cannabis use (OR=1.21, CI 1.18 to 1.25) and alcohol use (OR=1.17; CI 1.14 to 1.19). There was consistent evidence across all subgroups of an increased rate of decline in the percentage of young people saying that smoking is ok (OR=0.83; CI 0.81 to 0.86).

**Conclusion** We found no evidence that the growing prevalence of e-cigarette use has led to increased experimentation with smoking, and some evidence that young people's perceptions against smoking as a normative behavior have hardened rather than softened. Although the decline in weekly smoking rates is slowing, this appears to reflect a floor effect and is of smaller magnitude than change in trend for other substances. While the idea that e-cigarettes renormalize smoking has been central to much policy debate surrounding regulation, these findings indicate no reason to believe that this renormalization is occurring.

#### OP60 DIFFUSION OF THE ASSIST SMOKING PREVENTION PROGRAMME IN ADOLESCENT SOCIAL NETWORKS BEYOND THE SCHOOL SETTING

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**Background** Smoking prevention programmes that aim to reach adolescents before they start to experiment with tobacco may contribute to reducing tobacco use. ASSIST (A Stop Smoking in Schools Trial) is a peer-led, school and social network based, smoking prevention programme that encourages the dissemination of non-smoking messages among 12–13 year olds in the UK. To date, evaluation of ASSIST has focused on delivery within schools only. This study sought to address this gap by using qualitative social network research to map the social networks of peer supporters to explore the extent, nature, content and perceived impact of message diffusion beyond the school year.

**Methods** Qualitative, face to face interviews conducted in school with 16 young people aged 12–13 incorporating the creation of 'egocentric sociograms' to collect network data. Sociograms were then used to create a qualitative narrative to explore the extent, and perceived impact, of message diffusion in the wider social networks of peer supporters. Computer packages UCINET and NVivo were used to conduct analysis.

**Results** Peer supporter networks were fairly large with a total of 155 people. Network composition was weighted slightly more toward family members than friends. Peer supporters recalled having conversations about smoking with 103 people. Over half (53% n=55) of these conversations were with people out with their school year (e.g. parents, siblings, other family members, family friends and neighbours). Thematic analysis of conversation content revealed three types of conversation: protecting non-smokers from starting to smoke; encouraging smokers to stop; and protecting people in wider social networks. Perceived impact was noted for 37 people in peer supporter networks, with examples of positive and negative impact, focusing on the dynamics of a child speaking to an adult.

**Conclusion** Smoking prevention message diffusion was not limited to school year, reaching in to the wider networks of peer supporters. This creates learning opportunities for the future delivery of ASSIST or other similar peer-led interventions for smoking prevention, and the role of social network interventions in prevention.

## Mental health

#### OP61 CHRONIC INFLAMMATION AND SUBSEQUENT DEPRESSIVE SYMPTOMS: THE MEDIATING ROLE OF PHYSICAL ACTIVITY

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**Background** Chronic inflammation has been associated with the onset of depression, but the mechanisms underlying this relationship remain elusive. This study examined whether physical activity (PA) explained the association between elevated levels of inflammatory markers and subsequent depressive symptoms in an English nationally representative sample.

**Methods** The sample consisted of 2953 men and women (aged 50+) recruited from the English Longitudinal Study of Ageing (ELSA) an ongoing, open, representative prospective cohort study. Four waves of data between 2008/09 (wave 4) and 2016/17 (wave 8) were analysed. Serum levels of inflammatory markers (C-reactive protein (CRP)) and covariates (age, sex, education, wealth, body mass index, smoking, cholesterol, triglyceride) were measured at wave 4 (considered here as the baseline). Self-reported weekly moderate/vigorous PA (vs no weekly moderate/vigorous PA) was examined at a four-year follow-up (wave 6, 2012/13). Depressive symptoms were assessed at baseline and six years later (wave 7, 2014/15) using the 8-item version of the Centre for Epidemiological Studies Depression Scale (CES-D). Binary mediation analysis was used to investigate whether PA mediated the relationship between systemic inflammation and depressive symptoms, adjusting for the full set of covariates.

**Results** No significant associations were found between elevated levels of CRP and subsequent depressive symptoms (Odds Ratio (OR)=1.28 (95% Confidence Intervals (CI)) 0.98–1.68). Participants with high CRP were significantly more likely to be physically inactive (OR=1.29 (95% CI) 1.07 to 1.56). Physical inactivity was associated with greater