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.

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.
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 examined in the wider social 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.

**Results** Peer supporter networks were fairly large with a total of 153 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...