used a delivery service in the past month. In fully adjusted models, there was no association by occupational grade. For household income, the highest group (£50K+) had highest odds of use (OR 1.79, 95% CI 1.12, 2.84), compared to £0–20K. There was no association with BMI category.

Conclusion There is a social gradient in use of digital take-away food delivery services, with greater use in more socio-economically disadvantaged households. Use is positively associated with BMI. For digital grocery delivery there is no clear pattern, though there is some evidence that use is highest in high income households. This suggests socio-economic inequalities in diet and obesity have the potential to be exacerbated by adoption of digital food technology.

P28

ABSTRACT WITHDRAWN

P29

THE EFFECT OF CHANGES IN CONSUMER CHOICE AND IN FOOD COMPOSITION ON THE SODIUM DENSITY OF FOOD CONSUMED BY THE UK POPULATION BETWEEN 2008/09 AND 2016/17

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Background Educational campaigns are often used to guide populations having a healthier diet. Current diets can be improved by limiting high sodium intakes, known to be the most important modifiable risk for high blood pressure. The UK launched a sodium reduction programme in 2005, consisting of educational campaigns and a reformulation strategy. The educational campaigns aimed at helping population make healthier choices towards manufactured foods, and reduce their use of table salt. The reformulation strategy gave manufacturers voluntary targets as an incentive to reduce the sodium content of their foods, and thus improve the composition of foods people can choose from. This study aims at analysing how changes in food composition and in consumer choice contributed to changes in the sodium density of foods consumed.

Methods Using food diaries from the National Diet and Nutrition Survey in 2008/09 and 2016/17, we estimated the average quantity of food products eaten by the UK population. We calculated the sodium density of all foods (excluding drinks) consumed using year-specific nutrient information from the UK Nutrient Databank. Changes in sodium density between 2008/09 and 2016/17 were decomposed into changes in consumer choice and changes in food composition (reformulation of existing products and product renewal, i.e. the difference in sodium content between foods exiting and entering the market).

Results The sodium density of solid foods was reduced by 15%. Reformulation resulted in a 13% decrease in sodium density. Categories contributing to most of the decrease were breads and meat and fish products. Product renewal led to a 3% decrease in the sodium density, mostly from the renewal of fruit- and vegetable-based products. In opposition to the effect of reformulation and product renewal, consumers

switching between products led to a 1% increase in sodium density of solid foods consumed. This increase was the result of adverse choices in the sauces and condiment category (where consumers switched to products with higher sodium) and favourable choices in the meat and fish, and the grain-based products categories.

Conclusion Overall, the reduction in the sodium density of foods consumed was driven by reformulation. Besides for sauces and condiments, consumers made favourable choices towards products with lower sodium content. However, the relative contribution of changes in composition and changes in behaviour differed by category. Attitudes and food preference by product category should be considered in the design of educational campaigns.

P30

EMERGING ADULTS' ATTITUDES AND PERCEPTIONS TOWARDS ULTRA-PROCESSED FOODS, MEAT, FRUIT AND VEGETABLE CONSUMPTION IN A UNIVERSITY FOOD ENVIRONMENT

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Background The dietary choices we make affect our personal health and have consequences for the environment, both of which have serious implications for the 2030 Sustainable Development Agenda. There is a strong consensus that dietary modifications (including cutting on meat and dairy products) in favour of fruit and vegetables and other plant-based diets would offer dual health and environmental benefits. This is particularly important for Africa where the largest population growth and the most drastic future urbanisation, as well as the largest growth in non-communicable disease deaths are expected to happen in the next few decades amid severe food insecurity issues. Emerging adults are less likely to meet standard healthy diet recommendations. However emerging adulthood presents an opportune period to influence the adoption of healthy lifestyles.

Aim The aim of this research was to examine the knowledge, attitudes and behaviour of emerging adults—18 to 25-year olds—about food choices. We were interested in finding out if young adults at the University of Ghana think about health and sustainable development in deciding what food to eat or where to purchase food. The study also sought to map and assess the food retail environment and find out what would support emerging adults to make healthy/sustainable food choices.

Methods We asked University of Ghana students what informs their food choices within the University food environment. This was done through focus group discussions with eight groups of university students (aged 18 to 25), and interviews with ten best friend pairs (also university students aged 18 to 25) on the university campus. Food environment mapping and assessment was done using Open Source Mapping tools and a predefined Open Data Kit questionnaire. Using NVivo, the COM-B model to behavioural analysis approach was adopted to analyse the qualitative data.

Results Significant gaps in knowledge of dietary guidelines were identified among University students particularly

regarding WHO recommended intake for fruit and vegetables. Cost, satiety, convenience and taste were the most important determinants of food choice. While sustainable development was never considered, health and nutrition were only secondary. Healthy eating was interpreted as balanced diet, although students admitted not adhering to balanced meals. Term time food behaviour exhibited by students included breakfast skipping; snacking on pastries and sugar-sweetened beverages (SSBs); low fruit and vegetable intake; late night eating; and eating out. The map of the University food environment showed a limited proportion of food outlets offering healthy food options. Compared to SSBs and pastries, fruit and vegetable outlets were particularly limited and farther from most student accommodation and lecture halls.

P31 ABSTRACT WITHDRAWN

P32 IS ADOLESCENT MULTIPLE RISK BEHAVIOUR ASSOCIATED WITH REDUCED SOCIOECONOMIC STATUS IN YOUNG ADULTHOOD AND DO THOSE WITH LOW SOCIOECONOMIC BACKGROUNDS EXPERIENCE GREATER NEGATIVE IMPACT? FINDINGS FROM TWO UK BIRTH COHORTS

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Background Multiple risk behaviour (MRB) refers to the occurrence of two or more risk behaviours. Adolescent MRB is associated with multiple negative health outcomes including premature mortality and morbidity. It is also associated with deleterious social and educational outcomes such as reduced GCSE score, unemployment and police arrests. To date no studies have determined the relationship between adolescent MRB and young adult socioeconomic status (SES). The aim of the study was to examine the nature of the association between adolescent MRB and young adult SES including whether those with low early life SES experience greater negative impact.

Methods Two birth cohort studies; The British Cohort Study 1970 (BCS70) and The Avon Longitudinal Study of Parents and Children (ALSPAC), born in 1991–1992, were used and two comparable MRB score variables were derived. Logistic regression was used to explore the association between MRB and young adult SES. The moderating effect of three early life SES variables was assessed using logistic regression models with and without interaction parameters. Evidence to support the presence of moderation was determined by likelihood ratio tests $p \leq 0.05$. Missing data were addressed using multiple imputation methods.

Results Adolescents had a median of two risk behaviours in BCS70 and three in ALSPAC. Adolescent MRB was negatively associated with young adult SES (university degree attainment) in BCS70 (OR 0.81, 95% CI: 0.76, 0.86) and ALSPAC (OR 0.85, 95% CI: 0.82, 0.88). There was a dose response: each incremental risk behaviour resulted in reduced odds of university degree attainment. There was a negative association

between MRB and occupational status at age 34 in BCS70 (adjusted OR 0.86 95% CI: 0.82, 0.90). In BCS70, there was evidence that parental occupational status ($p=0.009$), maternal education ($p=0.03$) and household income ($p=0.03$) moderated the effect of adolescent MRB on young adult SES with the negative effect of MRB on degree attainment being stronger for those from low socioeconomic backgrounds. There was no evidence in ALSPAC that early life SES moderated this relationship.

Conclusion Adolescence appears to be a critical time in the life course to address risk behaviours, due to the likelihood that behaviours established here may have effects in later in life. Intervening on adolescent MRB could improve adult SES outcomes and thus indirectly affect longer term health. Evidence for a moderation effect in the BCS70 but not ALSPAC highlights that alternative measures should be explored to capture the nuance of contemporary young adult SES.

P33 SOCIOECONOMIC INEQUALITIES IN THE PREVALENCE AND MANAGEMENT OF HYPERTENSION: A MULTILEVEL ANALYSIS OF 13,605 MEN AND WOMEN IN CHILE

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Background Place-based characteristics have been implicated as determinants of socioeconomic inequalities in cardiovascular-related health risk factors (such as hypertension) and in use of healthcare services. In Chile, one-third of adults are hypertensive. Chilean evidence has documented inequalities in hypertension by various measures of individual socioeconomic position (SEP). However, more research is needed to assess the contribution of area-level contextual factors such as income inequality on hypertension management inequalities.

Methods Data came from the Chilean Health Surveys (2003, 2010, 2017: N=13,605 participants aged 17 years and older). Our outcomes were hypertension and management indicators (e.g. treatment among hypertensives). Hypertension was defined as SBP/DBP of at least 140/90 mmHg or use of anti-hypertensive medication. Years of formal education was our chosen measure of individual SEP; at the county-level, the Gini coefficient was used as an index of income inequality. Our models, adjusted for the complex survey design, were age (categorized as 17–64 or 65+ years) -and gender-specific. We compared two models. First, a fixed model assessed inequalities using individual-level SEP. Secondly, multilevel analyses assessed inequalities using individual-level SEP after adjustment for the Gini coefficient. Inequalities were summarised using the Slope and Relative Indices of Inequality (SII and RII, respectively). For brevity, we report only the RII (values above 1 indicate higher outcomes amongst those with lower education).

Results Hypertension prevalence was 34.0% (95% CI: 31.6–36.4), 32.0% (29.9–34.2) and 30.8% (28.7–32.9) in 2003, 2010 and 2017, respectively. Levels of treatment among hypertensives was 38.5% (34.9–42.3), 56.5% (52.3–60.6) and 65.2% (61.2–68.9) in 2003, 2010 and 2017, respectively. Inequalities in hypertension were higher in 2017 after adjustment for the Gini coefficient. For example, in the fixed-effects model, the RII for hypertension among persons aged below