scenarios to be modelled by the ABM – to facilitate discussion and solicit feedback on the conceptual model specifications. The feedback from the sessions were collated and reviewed and adjustments were made to both the conceptual model and the use-cases.

Results Upon reaching a shared understanding of the model concept, participants identified gaps in the conceptual model and developed new use case scenarios to be adjusted for future iterations. A number of feedback loops in the model were also highlighted for further consideration (e.g., travel choice, food price elasticity). Data collected from the session also supplied valuable input into development of suitable visual boundary objects that will be used to facilitate additional group modelling exercises and conversations with stakeholders. Additional meetings with stakeholders will further refine the conceptual model and provide ground truthing to the computational model.

Conclusion This iterative process facilitated the understanding of the complex systems underpinning local food environments and allows for ground truthing and future validation of the ABM. Co-development of model use cases facilitated a shared understanding of the purposes of the model and will help to maximise its usefulness for stakeholders.

P26 HOW DOES CHANGING THE PLACEMENT OF FOOD PRODUCTS IN SUPERMARKETS INFLUENCE CUSTOMERS' PURCHASING AND STORE SALES?

[1]S Crozier*, [1,2]J Baird, [1,2]C Cooper, [1,2]C Vogel. [1]*MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, UK*; [2]*NIHR Southampton Biomedical Research Centre, University Hospital Southampton NHS Foundation Trust, Southampton, UK*

10.1136/jech-2020-SSMabstracts.122

Background Supermarkets are a major source of food for families, yet greater understanding of how product placement strategies influence the healthfulness of food choice is needed. We assessed the effect of improving the availability and positioning of fruit and vegetables in supermarkets, and removing confectionery from checkouts, on household-level purchases and store-level sales.

Methods This study was a natural experiment with a prospective matched cluster design set in a discount supermarket chain in England. The intervention had two components: new fresh fruit and vegetable sections at store entrances (replacing smaller displays at the back), and removal of confectionery from checkouts (replacing with healthier items, such as sugar-free gum, water and non-food items) and end-of-aisle opposite checkouts. Women customers aged 18 to 45 years, with a store loyalty card, who regularly shopped at three intervention and three matched control stores in England were recruited. Data from purchases using loyalty cards and for store sales were collected for the three months before and six months after refurbishment. Individual purchasing data were analysed using a difference-in-difference method, while store sales data were analysed using controlled interrupted time series by store pair, with differences synthesised using random-effects meta-analysis.

Results A total of 107 women provided household-level purchasing data. The proportion purchasing fresh fruit and vegetables per week rose in intervention stores at three months (0.2%) compared to a drop in control stores (-3.0%) (P=0.22), and at six months (1.7% vs -3.5%, P=0.05). The proportion purchasing healthier checkout items rose more in intervention stores compared to a drop in control stores at both three (1.0% vs -1.8%, P=0.04) and six (0.6% vs -1.6%, P=0.13) months. There were no differences in the purchases of frozen fruit and vegetables or confectionery. Increases in store-level sales of fresh fruit and vegetables were greater in intervention stores than predicted at three months (1.71SDs (95%CI 0.45, 2.96), P=0.01) and six months (2.42SDs (0.22, 4.62), P=0.03). Decreases in sales of confectionery were greater in intervention stores than predicted at three months (-1.05SDs (-1.98, -0.12), P=0.03) and six months (-1.37SDs (-2.95, 0.22), P=0.09). Sales of frozen fruit and vegetables and healthier checkout items showed no differences.

Conclusion This study provides some evidence to suggest that healthier product placement in supermarkets improves the healthfulness of both household-level purchasing and store-level sales. Improving fruit and vegetable placement should be considered by government alongside current plans to limit prominent placement of unhealthy foods.

P27 DIET – IS THERE A NEW DIGITAL DIVIDE? SOCIAL INEQUALITIES IN USE OF DIGITAL FOOD DELIVERY SERVICES AND ASSOCIATIONS WITH BMI

[1]S Cummins*, [1]N Berger, [1]V Er, [2]C Thompson, [1]C Law, [1]L Cornelsen. [1]*Population Health Innovation Lab, London School of Hygiene and Tropical Medicine, London, UK*; [2]*School of Health and Social Work, University of Hertfordshire, Hatfield, UK*

10.1136/jech-2020-SSMabstracts.123

Background Food retailing is undergoing a fundamental transformation. Digital on-demand technology is dramatically reshaping food distribution and delivery, making food and prepared meals more accessible and convenient. The impact of this disruption on food purchasing and consumption behaviour and dietary inequalities is unknown. This study aims to explore whether there is a social gradient in use of digital food delivery services for both take-away food and grocery purchasing, and whether use of these services is associated with BMI.

Methods We used data from UK Kantar Fast Moving Consumer Goods (FMCG) panel, a nationally representative panel study of all take-home household food and beverage purchasing. We used data from London and the North West of England (n=1559) from February 2019. Households reported usage of digital take-away food delivery services (past 7 days) through a bespoke online survey. We used logistic regression models to estimate the odds of delivery service usage by occupational grade (AB, C1, C2, DE) and income (£0–20K, £20+-50K, £50K+) and to estimate whether usage was associated with BMI category (<25; 25–29; >30), derived from self-reported height and weight. Results were adjusted for potential socio-demographic confounders.

Results For take-away food purchasing, 13% of survey respondents had used a digital delivery service in the past 7 days. In fully adjusted models, a dose-response pattern was observed with lower occupational grade associated with higher usage for both C2 (OR 1.66, 95% CI 1.01,2.73) and DE (OR 1.92, 95% CI 1.18,3.09) households, compared to AB. Similar patterns were observed for household income. Use was associated with BMI category 25–29 (OR 1.52, 95% CI 1.10, 2.29) and 30+ (OR 1.8, 95% CI 1.18, 2.72), compared to <25. For digital grocery purchasing, 15.6% of households had

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 takeaway food delivery services, with greater use in more socioeconomically 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

[1,2]M Gressier*, [2]F Sassi, [1]G Frost. *[1]Section for Nutrition Research, Imperial College London, London, UK; [2]Centre for Health Economics and Policy Innovation, Imperial College Business School, London, UK*

10.1136/jech-2020-SSMabstracts.124

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

[1]DO Mensah*, [2]F Mintah, [3]S Oteng, [3]R Aryeetey, [4]R Lillywhite, [1]AR Nunes, [1]O Oyebode. *[1]Division of Health Sciences, University of Warwick, Coventry, UK; [2]Nutrition Department, Police Hospital, Accra, Ghana; [3]School of Public Health, University of Ghana, Accra, Ghana; [4]Department of Life Science, University of Warwick, Coventry, UK*

10.1136/jech-2020-SSMabstracts.125

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