The impact of interventions that adopt a local approach on diet in small island developing states: a systematic review

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accessing services and less planned pregnancies. Sexual health services preparing for future crises may need to further take into account the needs of young people and vulnerable women.

Friday 9th September
Food systems, 9:00 – 11:00

**OP76** ASSOCIATIONS BETWEEN THE FOOD ENVIRONMENT AND FOOD AND DRINK PURCHASING: CROSS-SECTIONAL STUDY USING LARGE-SCALE COMMERCIAL PURCHASING DATA

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Background Exposure to a poor-quality food environment is thought to influence diet-related behavioural and health outcomes, but evidence is mixed. Better evidence may be generated by exploring associations with more proximal outcomes, such as food purchasing. This study explores associations between food environment exposures household take-home and out-of-home (OOH) food and drink purchasing.

Methods Item-level food and drink purchase data from the 2019 Kantar Fast Moving Consumer Goods panel for London and Northern England, UK, were used to assess associations between food environment exposures and household-level take-home (n=2118) and individual-level OOH (n=447) food and drink purchasing. Residential neighbourhood food environment exposures were created using address-level data from take-home (chain and non-chain supermarkets) and OOH (restaurants and takeaways) outlets retrieved from Ordnance Survey Points of Interest. Exposures were derived using a 1 km network buffer around the population-weighted centroid of households’ residential postcode districts. Density, proximity and relative composition measures were created for both take-home and OOH outlets. Negative binomial regression models explored associations between food environment exposure measures and frequency of take-home food and drink purchasing, total take-home calories, calories from fruits and vegetables, high fat, salt and sugar products, and ultra-processed foods (UPF), volume of take-home alcoholic beverages, and frequency of OOH food and drink purchasing. Models were adjusted for individual and household socio-economic characteristics, area deprivation and population density.

Results Fully adjusted models found no consistent patterns of association between food environment exposures and take-home and OOH food and drink purchasing. There was some evidence for an inverse relationship between the distance to OOH outlets and purchased calories from ultra-processed foods (UPF), with a 500 m increase in distance to the nearest OOH outlet associated with a 1.1% reduction in take-home UPF calories (Incidence Rate = 0.989; 95% confidence interval 0.982–0.997). A lower density of independent supermarkets was linked to higher volume of purchased alcohol in Northern England only (IR = 0.952, 95%CI 0.927–0.978). Greater distance to OOH outlets was associated with higher volumes of purchased alcohol in both regions separately, but more strongly in London (IR = 1.298, 95%CI 1.089–1.549 vs. IR = 1.139, 95%CI 1.039–1.248).

Conclusion This study, using highly granular objective consumer purchase data, finds limited evidence for the role of the food environment on food and drink purchasing, despite some evidence for the role of exposure of OOH outlets in UPF purchasing. Region-specific effects on alcohol purchases indicate the importance of spatial context for research and policy.

**OP77** THE IMPACT OF INTERVENTIONS THAT ADOPT A LOCAL APPROACH ON DIET IN SMALL ISLAND DEVELOPING STATES: A SYSTEMATIC REVIEW

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Background Small Island Developing States (SIDS) are commonly burdened by high rates of nutrition-related non-communicable diseases, micronutrient deficiencies, and, in many, persistent childhood stunting. Most of these issues are related to dietary changes, driven by food systems increasingly dominated by global markets and products and vulnerable to environmental and economic threats. This has caused an urgent need for strengthening local food systems, resilient to climate change. We aimed to systematically review evidence on interventions intended to improve diet in SIDS and assess the impact of those adopting a local food approach.

Methods The systematic review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses framework. The search strategy included studies published since 2000 and was applied to eleven databases, including those related to health, social science, and agriculture. Screening of titles, abstracts, and data extraction was undertaken in duplicate; risk of bias was assessed using appropriate Cochrane tools. The results were narratively synthesised. The study protocol was registered: PROSPERO 2020 CRD42020201274.

Results From 26,062 unique records, 154 underwent full-text review and 24 were eligible for inclusion. Eligible studies were from the Caribbean, Pacific, Mauritius, and Singapore. Five were of a randomised study design, one an interrupted time series analysis, eight controlled pre and post-test, and ten uncontrolled pre and post-test. Nine of the 24 studies included a local food approach with eight including the promotion of locally produced food or traditional dietary behaviours, while one examined the unique nutritional composition of local food in their outcome measure of nutrient intake. Five of these nine studies included a practical food production component, such as teaching skills for planting and harvesting own produce. Of the eight studies that included an aspect of ‘local’, four showed significant improvements in dietary intake and nutrition knowledge, two of the four being garden-based nutrition education interventions, supplemented with practical skills components. Only three studies met the criteria for low risk of bias, with 13 being at moderate risk.
Conclusion There is an overall lack of robust evidence on interventions to improve diet in SIDS. The existing evidence suggests that multifaceted interventions applying a local food approach are likely to be effective. Given the issues related to adapting globalised food systems, further development and evaluation of interventions incorporating increased production and consumption of local food is urgently needed to help guide policy.

**OP78 ASSOCIATION BETWEEN ONLINE GROCERY DELIVERY SERVICE USE AND FOOD AND DRINK PURCHASE BEHAVIOUR: A CROSS-SECTIONAL ANALYSIS OF UK PURCHASE DATA**

Amy Yau*, Cherry Law, Laura Cornelsen, Jean Adams, Emma J Boyland, Thomas Burgoine, Frank de Vocht, Martin White, Steven Cummins.

Objective To examine the association between online grocery delivery service (OGDS) use and food and drink purchases.

Methods Household and food purchase data were available from the 2019 UK Kantar Fast Moving Consumer Goods Panel. Households were randomly sampled if residing in London and the North of England. Purchases were categorised as being bought online or in-store based on store type information. We used logistic regression to estimate the likelihood of above median frequency of OGDS use by sociodemographic characteristics and is associated with the amount and types of grocery purchased.

Methods Food and drink purchase data were available from households (n=1911) in the 2019 UK Kantar Fast Moving Consumer Goods Panel. Households were randomly sampled if residing in London and the North of England. Purchases were categorised as being bought online or in-store based on store type information. We used logistic regression to estimate the likelihood of above median frequency of OGDS use by sociodemographic characteristics and is associated with the amount and types of grocery purchased.

Results Median use was five occasions in 2019 for households that used OGDS (n=668). Higher-income households were more likely to have above median use (OR 1.56, 95% CI 1.02 to 2.38 for ≥£50,000 versus <£20,000). Households with above, versus below, median OGDS use purchased a mean of 1,460.8 kcal (95% CI 1,447.7 to 1,473.8) more energy per person per week. Households that used both in-store and online shopping methods tended to have healthier purchases online. Online versus in-store purchases had a larger proportion of energy from vegetables (1.0%, 95% CI 0.2 to 1.8), healthy non-milk-based drinks (1.6%, 95% CI 0.7 to 2.4) and alcohol (1.2%, 95% CI 0.4 to 2.1), and a smaller proportion of energy from puddings and biscuits (-3.3%, 95% CI -4.1 to -2.5), and chocolate and confectionery (-1.5%, 95% CI -2.2 to -0.7).

Conclusion Although online purchases were healthier, households with above median OGDS use had greater total energy purchases. This may lead to increases in over-consumption or waste. Further, OGDS may intensify existing socioeconomic inequality in food purchasing because of differential OGDS use across socioeconomic groups. Thus, the online food environment may have positive and negative consequences for population diet. Study limitations include reliance on self-reported data, as households may have forgotten to report some purchases, and the lack of information on intra-household distribution of purchases.

**OP79 MEDIUM TERM CHANGES IN HOUSEHOLD PURCHASING OF SOFT DRINKS FOLLOWING THE UK SOFT DRINKS INDUSTRY LEVY BY INCOME AND HOUSEHOLD COMPOSITION: CONTROLLED INTERRUPTED TIME SERIES ANALYSIS, MARCH 2014 TO NOVEMBER 2019**

Nina Rogers*, David Pell, Steven Cummins, Harry Rutter, Stephen Sharp.

Objective To examine the medium-term impact of the UK Soft Drinks Industry Levy (SDIL) on household purchasing of soft drinks.

Methods Take-home household purchases of soft drinks (levy eligible or not) across 295 weeks (March 2014-November 2019) were analysed using a commercial household purchasing panel (mean weekly number of households =21,908). Interrupted time series (ITS) were used to estimate SDIL-related changes in purchased volume of, and sugar in, soft drinks, with toiletries as a control category. Counterfactual values were predicted based on pre-announcement trajectories. Differences between observed and counterfactual values were estimated by household income (<£20,000, £20-50,000 or >£50,000) and presence of children (<16 years) in households (yes or no).

Results By November 2019, overall purchased sugar in soft drinks fell but volumes remained unchanged, compared to the counterfactual. In low-income households, weekly sugar purchased in soft drinks decreased by 14.0% (95%CI: 12.1,15.9) compared to the counterfactual but increased by 3.4% (1.07,5.75) in high income households. Among households with children, sugar purchased decreased by 13.7% (12.1, 15.3) compared to the counterfactual but increased in households without children by 5.0% (3.0, 7.0). Low-income households and those with children also reduced their weekly volume of soft drinks purchased by 5.7% (3.7, 7.7) and 8.5% (6.8, 10.2) respectively. There was no evidence of substitution to confectionary or alcohol in any groups.

Discussion In the second year, following implementation of the SDIL, there were sustained reductions in sugar from soft drink purchases. Effects were greatest in those with the highest pre-SDIL purchasing levels (high and low-income households and children) and in low-income households and children. The impact of the SDIL was greater in high income households and those without children. The impact on volume was greater in low-income households and children. The lack of evidence of substitution to confectionary or alcohol in any groups suggests that the reduction in sugar was due to lower volume purchases. The implementation and enforcement of a tax on sugar-sweetened beverages could be an effective policy tool for reducing sugar consumption in the UK.