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# Healthier swaps: evaluating the effects of in-store point of sale messaging to encourage choice of 'healthier' alternatives to popular products

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Poor diet is a leading cause of non-communicable disease and mortality, with just 1% of the UK population consuming a diet aligned with Eatwell Guide recommendations [1,2]. Over-consumption of fat, sugar and salt is particularly concerning, but individuals are resistant to change. Point of purchase nudges are proposed for encouraging customers towards healthier dietary choices. Using an uncontrolled observational design, we investigated the effectiveness of in-store signposting on healthier swaps.

Signposting was applied across all stores for 4 weeks in February 2021, with analysis undertaken for 133 stores in two regions of England. Eight cross-category product pairs were chosen by the retailer, (cereals, tuna, chicken, fries, granola, rice, cheese and coleslaw). 'Healthier' alternatives were nutritionally favourable in at least one component (lower in calories, fat, or sugar, or higher in fibre), considered realistic, and priced the same or lower than the original.

Basket-level sales were obtained from the retailer for 12 weeks prior to the intervention, 4 weeks during, and 12 weeks post-intervention. Data for the same 28-week period was provided for two years prior to the intervention to train Bayesian Interrupted Time-Series models (using Python's CausalImpact package) to predict store-level daily sales, had the intervention not occurred. Predicted sales were compared with actual sales by calculating the mean relative difference at the 95% significance level. Signposting was considered successful where sales of the 'healthier' product were significantly higher than predicted and sales of the 'less healthy' variant were significantly lower or no different.

Stores where products were out of stock were excluded. Sales of the low-sugar cereal (n = 99 stores) were 32% higher than predicted during the trial (95% CI: 6%, 59%, p = 0.01)), but this was not sustained post-trial (- 52%, 95% CI: -94%, -14%, p < 0.001). Sales of low-fat coleslaw (n = 73 stores) increased by 71% during the trial with borderline significance (95% CI: -12%, 157%, p = 0.05) but declined post-trial (-63.22%, 95% CI: -125, -2, p = 0.02). Sales of less healthy granola (n = 97 stores) were significantly higher than predicted during the trial (166%, 95% CI: 152%, 181%, p < 0.001), but did not differ for the healthier (higher fibre) granola (-2%, 95% CI: -28, 21, p = 0.43). Sales of both granola variants declined significantly post-trial. For fries, rice and cheese, sales of both variants were significantly higher than predicted during the trial period, but effects were not maintained. For tinned tuna and breaded chicken, sales of both product variants did not differ significantly from predicted during the trial.

Results were mixed, with success observed for cereals. Greatest resistance was observed in protein-rich meal centres. Sugar and calorie messaging was more effective than fat and fibre messaging. Propensity to change by product category and messaging type should be further explored, supported by qualitative data.

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## References

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