

Evaluation of Food for Life

Impact on primary school children's consumption of fruit and vegetables

Summary Report

Introduction

This research examined the impact of Food for Life (FFL) local commissions on the diets of primary school pupils. It focused on fruit and vegetable consumption as national surveys show that children in England do not consume the recommended number of portions (Health Survey for England 2013), and daily intake of fruit and vegetables is a well-recognised indicator of a healthy diet. In the evaluation of phase 1 of FFL, the research found an increase in children's fruit and vegetable consumption in FFL flagship schools (Jones et al 2012). An important question is whether there is similar evidence of impact with the FFL programme as it scales up and further integrates with local strategic work.

Research question

This research was designed to answer the question: *Do Year 4 and 5 pupils consume more fruit and vegetables in schools engaged with FFL than pupils in schools not engaged with FFL?* Supplementary objectives sought (a) to determine whether the FFL programme is associated with pupil reported school meal take up, positive perceptions of food in school and experiences of cooking (b) to test whether progression from scheme enrolment to bronze and silver FFL awards, are predictive of outcomes and (c) to identify outcomes for each locally commissioned area.

Research methods

The research design was a cross sectional study in which schools engaged with FFL were compared with schools not engaged in the programme. FFL schools and Comparison schools were matched in the same local authority area by Free School Meal eligibility quintile and size. The survey covered pupils in Years 4 and 5. Pupil diets were measured using the Day in the Life Questionnaire (DILQ), a validated questionnaire specifically designed to measure fruit and vegetable consumption in children in a school setting. DILQ is identified as a suitable tool in Public Health England's Standard Evaluation Framework for Dietary Interventions (PHE, 2013). Additional measures in the questionnaire asked pupils about their perceptions of food in school and related food activities.

The survey took place in five FFL local commission areas; A, B, C, D and E. The survey had a total of 47 schools (FFL schools=24; Comparison schools =23) and 2411 pupils (total FFL pupils =1265; total Comparison pupils=1146). Pupils in the FFL and Comparison school groups, showed similar characteristics in terms of age, gender, the total number of children on roll and Free School Meal Eligibility (FSME) at school level.

Findings

1. Pupils in **FFL schools consumed more portions of fruit and vegetables** than pupils in comparison schools (FFL mean=2.03; comparison mean=1.54; $p=0.000$). Pupils in FFL schools therefore reported **consuming almost one third more** (2.03/1.54) than pupils in Comparison schools.
2. Pupils in FFL schools ate significantly more fruit and vegetables in school (FFL mean=1.24; comparison mean=0.89; $p=0.000$). They also ate significantly more fruit and vegetables **at home** (FFL mean=0.79; comparison mean=0.65; $p=0.000$).
3. After adjusting for FSME, gender and local authority variation, pupils in **schools engaged with the FFL programme were twice as likely to eat five or more portions of fruit and vegetables per day** OR=2.07, $p=0.000$, CI (1.54, 2.77), they were also about 60% more likely to eat more than the national average of 2.55 portions per day; OR=1.66, $p=0.000$, CI (1.37, 2.00).
4. Across the whole survey, a **large proportion of pupils reported eating no fruit and vegetables** in the day prior to the survey. However the groups were different: 23.4% of pupils in FFL schools and 33.9% of pupils in comparison schools were recorded as eating no fruit and vegetables.
5. For fruit and vegetable **intake there was a significant difference between pupils in bronze and silver schools** (bronze, mean=1.97; silver, mean=2.18, $p=0.028$). Pupils in silver FFL award schools were over twice as likely to eat 5 or more portions of fruit and vegetables compared to pupils in schools with no FFL award, i.e. both Engaged schools with no award and Comparison schools (15.6% compared to 6.7%).
6. School meal take up, based upon pupil reported of meals in the week prior to the survey, was 56.1% in FFL schools and 49.9% in comparison schools, a 6.2 percentage points difference that was significant, $p=0.045$. **In FFL schools, 6.0% more pupils had had at least one school meal** in the week prior to the survey (FFL: 70.0%, Comparison: 64.0%, $p=0.008$).
7. **School meal take up was associated with higher fruit and vegetable consumption for pupils in FFL schools.** By contrast, fruit and vegetable consumption was not associated with school meal take up in the Comparison schools. This could be a reflection of greater provision of fresh fruit and vegetables in school meals in FFL schools than Comparison schools.
8. After adjusting for gender, FSME and local authority differences, pupils **in FFL schools were about 40% more likely to 'like' or 'really like' school meals:** OR=1.43, $p=0.00$, CI (1.71, 1.75). Pupils in FFL schools were also significantly more likely to give a positive rating of school lunchtime in their school ($p = 0.005$).
9. Analysis at the level of local commissions showed a **positive impact on the primary study outcome measure i.e. self-reported portions of fruit and vegetables (FV) consumed and related sub-measures in local commissions C and E. This impact was evident for most of the same measures in local commission B.** Positive outcomes for **local commission D** were found when the analysis focused on the differences between schools that had an FFL award and schools with no award. In **local commission A** analysis produced mixed findings with respect to associations of the FFL programme with pupil reported school meal take up, perceptions of food in school and experiences of cooking.
10. Various factors may explain the inconsistent evidence of positive outcomes at local commission level. While it was not possible to evaluate these three factors appear important; infrastructure based factors; social factors and; resources available to each commission.

11. While the DILQ was used in accordance with the author's instructions, it is recognised fruit and vegetable consumption could be under recorded since composite foods are not included. This could be relevant to FFL given the focus on including fruit and vegetables as part of composite dishes in school meals. Further research is needed to investigate if an adapted DILQ tool can assess composite dishes and/or have access to recipes used in school meals.
12. Supplementary dietary analysis was conducted for the local commission C survey sample. The analysis found no difference in the consumption of sweet snacks and savoury (salty) snacks in school or out of school. Pupils in comparison schools consumed significantly more servings of high energy drinks out of school compared to pupils in FFL schools ($p=0.002$) while differences in consumption of high fat food only just reached significance ($p=0.045$) for pupils in FFL schools.

Recommendations and conclusions

Whilst it is important to recognise possible residual confounding by socio-economic and other factors, this study found that the mean for daily fruit and vegetable consumption was significantly higher for Year 4 and 5 pupils (aged 8-10) in FFL schools compared to pupils in schools not engaged with the programme.

This study suggests that **schools engaged in the FFL programme provide an important opportunity for 8-10 year olds to consume fruit and vegetables.**

Fruit and vegetable consumption for pupils in FFL schools was not only higher within school time; it was also higher at home. FFL and commissioners can draw upon this finding to examine the potential 'spill over' of the programme from the school to the home, and the extension of impact into the wider community.

Progression to a bronze and silver award is linked with higher fruit and vegetable consumption.

The Food for Life School Award framework could be used as an indicator for key food related outcomes and can provide a proxy for positive dietary behaviour.

The findings indicate that **achievement of the FFL Catering Mark is a driver for improving fruit and vegetable consumption.**

There are differences in specific outcomes at the level of each local commission. These provide a base for valuable learning across commission areas and add to our understanding of how external factors can limit the progress of local commissions.

The Day in the Life Questionnaire (DILQ) is a **practical tool for assessing fruit and vegetable consumption and has the potential to be used in future evaluation of FFL commissions.**

This study is part of the national evaluation of Food for Life 2013-15 conducted by Mat Jones Hannah Pitt, Judy Orme, Selena Gray, Debra Salmon, Robin Means, Emma Weitkamp, Liz Oxford, Richard Kimberlee, and Jane Powell from the Public Health & Wellbeing Research Group at the University of the West of England, Bristol (UWE Bristol). The full report is available from Mat Jones matthew.jones@uwe.ac.uk and Food for Life ffl@foodforlife.org.uk

Jones M, Pitt H, Oxford L, Bray I, Kimberlee R & Orme J (2015) *Pupil survey in local commission areas: Food for Life's impact on primary school children's consumption of fruit and vegetables. Full Report.* UWE Bristol.