Proceedings of the Nutrition Society (2024), **83 (OCE4)**, E480 doi:10.1017/S0029665124007183

Nutrition Society Congress 2024, 2–5 July 2024

The effects of Project DAIRE, a school-based food intervention study, on diet diversity, diet quality and health attitudes of children in Northern Ireland

D. Olgacher[1], C. Wallace[1], S. F. Brennan[1,2], F. Lavelle[2], S. E. Moore[1,2], M. Dean[2], M. C. McKinley[1,2], P. McCole[3], R. F. Hunter[1], L. Dunne[4], N. E. O'Connell[2], C. R. Cardwell[1], C. T. Elliot[2], D. McCarthy[2] and J. V. Woodside[1,2]

[1]*Centre for Public Health, Queen's University Belfast, Belfast, UK*

[2]*Institute for Global Food Security, Queen's University Belfast, Belfast, UK*

[3]*School of Business, Maynooth University, Maynooth, Co. Kildare, Ireland*

[4]*Centre for Evidence and Social Innovation, Queen's University Belfast, Belfast, UK*

The diets of children in the UK are suboptimal[(1)], which may influence their immediate and future health and well-being[(2)]. Schools offer convenient and prolonged access to children from diverse backgrounds, thus interventions within this setting have been suggested as a means to promote diet and health outcomes among this population[(3)]. This study explored the effects of Project Daire[(4)], a school-based food intervention, on children's diet diversity and diet quality as well as their attitudes towards health behaviours.

A factorial design cluster randomized controlled trial was conducted. Fifteen primary schools in Northern Ireland were randomized into one of four 6-month intervention arms: Nourish, Engage, Nourish and Engage or Control (Delayed). The Nourish intervention modified the school food environment, provided food-related experiences and increased access to local foods. The Engage intervention included educational activities on nutrition, food and agriculture. Data on food consumption at home, school and/or in total over a 24-hour period were collected using ageappropriate food frequency questionnaires at baseline, with follow-up at 6-months. Diet diversity score (DDS) and diet quality score (DQS) were developed based on adherence to the Eatwell Guide. Additionally, a Health Attitudes and Behaviour measure assessed 10-11 year old children's attitudes towards importance of various health behaviours at both time points. Linear and logistic regression models were used to examine intervention effects and to account for school clustering.

A total of 445 children aged 6-7 and 458 aged 10-11 years old completed the trial. Results indicated that children aged 10-11 year old who received the Nourish intervention demonstrated higher school DDS (adjusted mean difference = 2.79, 95% CI 1.40 – 4.19; p = 0.001) and total DDS (adjusted mean difference = 1.55, 95% CI 0.66 – 2.43, p = 0.002) compared to their counterparts who did not. Subgroup analyses revealed that the increases in school DDS among 10-11 year old children in the Nourish group were apparent in both boys and girls (Boys: adjusted mean difference = 2.4 95% CI 0.1 – 4.7, $p = 0.04$; Girls: adjusted mean difference = 3.1 95% CI 1.6 – 4.6, $p = 0.001$). However, the increase in total DDS remained statistically significant only among girls, with an adjusted mean difference of 1.9 (95% CI 1.1-2.7, p<0.001). No statistically significant changes in DQS were detected in either age group. High levels of positive attitudes towards health behaviours were observed at baseline, with no clinically significant effects of either the Nourish or Engage interventions detected during the follow-up period.

The multi-component approach of the Nourish intervention, addressing both food provision and environment, showed promise in promoting diet diversity. Further research is warranted to develop sustainable implementation strategies for Daire, to explore additional intervention components to impact other outcomes, including diet quality, and to evaluate long-term effectiveness.

References

1. Public Health England (PHE) (2020) NDNS Years 9–11 [Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/fil e/943114/NDNS_UK_Y9-11_report.pdf].
2. Andueza N *et al.* (2022) *Nutrients* **14**(2), 372.
3. Woodside JV *et al.* (2021) *Public Health Nutr* **24**(8), 2313–7.
4. Brennan SF *et al.* (2021) *Int J Behav Nutr Phys Act* **18**, 1–8.