A participatory pilot study of the Healthy Preschool Meals Intervention

Background

In the UK, many of the youngest children are going hungry, with 25% experiencing food insecurity in school holidays ('holiday hunger')(1). Here, food insecurity is the situation where a household cannot have a nutritionally sufficient diet through the usual process of buying food in a store, but instead have to cut back on meal sizes, skip meals or seek help from food aid such as food banks. The negative impacts of hunger and poor nutrition on a child in their early years are well known for both health outcomes and educational attainment (2). Among school-aged children in England, school meals are free to parents for all in Key Stage 1 (Reception, Year 1, Year 2) and there are ongoing discussions about extending the duration of this Free School Meal (FSM) provision in more deprived areas to increase support (3). Within the early years, the NHS operates the means-tested Healthy Start Voucher Scheme that offers food vouchers to pregnant people and children under the age of four. However, take-up of Healthy Start vouchers is varied (71.4%) (4) and parents are not the only people with the opportunity to feed young children.

Children aged 9 months to 4 years in England are entitled to free childcare of between 15-30 hours per week with approved providers for the care and education costs; this does not help parents with food costs at these settings (5). Currently, there is no UK Government support for the provision of free, nutritious food to children who attend Early Childhood Education and Care (ECEC) settings in England. Many of these settings have highlighted that they are working with young children who are hungry and, through no fault of the children or the ECEC setting, there is no support from the UK Government in place to meet these children's fundamental nutrition needs. Thus, ECEC staff face a regular difficult dilemma: How can they provide basic food and nutrition to hungry young children with no practical or suitable financial support from the State? Other points to consider:

1. The recent expanded provision of FSM to children in primary school

2. That ECEC settings in England have a statutory duty to help children understand the importance of healthy food choices, "…learn how to look after their bodies, including healthy eating... … through adult modelling and guidance" (6),

3. The ECEC sector in the UK is widely understood to be underfunded and offer some of the lowest paid jobs in the UK.

The change in government to Labour in 2024 has seen a potential change in plan for early years, with the proposition of increasing the support from the State in childcare and early education (7). However, it is not possible for families to wait for set plans from government and changes to be implemented. This results in other organisations looking to answer questions and find support concerning child development and health.

Within Southampton, there is a strong interest from the city council to support children's health as stark inequalities exist in key health outcomes between areas of high and low deprivation. Overall, prevalence of children with excess weight at reception is 25.4% for Southampton (2023/24), significantly higher than the England average of 22.1%. The difference in prevalence between the most and least deprived areas of Southampton is 25.2% in the most deprived compared to 20.0% in the least deprived.

Early intervention to develop healthy habits is known to promote better health later in life. Southampton City Council have set up the Healthy Early Years Award (HEYA) from 2009 to help early years settings provide a healthy environment for the children they care for, and one focus in this award scheme is Healthy Eating and Physical Activity. This award framework, combined with the engagement of other partners, enabled the development of a new intervention to address diet behaviours at an early age in Southampton, the **Southampton Healthy Early Years Award**. This intervention enables early years settings to undertake an award programme providing information and a guided structure to assist the setting to establish good habits and support the health and wellbeing of children and families.

The Intervention and Implementation

The pilot intervention was run as a response to the observed challenges of childhood hunger and food insecurity. This intervention was developed by colleagues at Southampton City Council, Abri Housing Association, University of Southampton and Mansbridge Pre-school. The aim of this project was to carry out a participatory pilot study of a new intervention that will enable ECEC settings across England and the UK to put in place their own provision of effective, localised, sustainable, and funded preschool meals and to provide nutritional standards and information – while at the same time supporting parents to make positive nutrition changes at home. There is a clear need for such a nationwide intervention (as above). Only through a truly participatory pilot study could the intervention be effectively developed and trialled in terms of feasibility of its intended: activities, impacts, and wider implementation. The remainder of this document first describes the pilot study of an intervention and the initial reflections about the intervention from the ECEC staff, the parents and the children. A larger, funded, trial of this intervention across more settings would enable us to identify the potential positive impacts on health behaviours and development at this critical stage.

The intervention was designed to be both low in cost and easy to be implemented in an ECEC setting. The intervention was designed to support such settings with their provision of nutrition education to children, staff, parents and carers. The intervention allowed Mansbridge Pre-school to provide healthy food to the pre-schoolers and their family, in addition to the provision of food, cooking and shopping advice to the parents. The intervention also acted as a pilot toolkit for Mansbridge Pre-school as advice and resources were provided to implement the weekly cooking and eating sessions.

The food and food preparation materials and costs were met by Abri Housing through an initial grant. The recipes were developed by Abri initially as part of their Good Grub Club then cross checked to ensure they met the HEYA healthy eating standards. Recipes were then updated for portion size and nutrient targets by a registered dietitian. In addition, activities were developed to engage children in food preparation, exploration and tasting by Abri and the HEYA team at Southampton City Council. The University of Southampton provided staff time to develop the proposed research plan, obtain ethical approval for the pilot study, a research fellow to collect and analyse data, and to prepare a final report that outlines the results with suggestions for further resources. Staff at Mansbridge Pre-school were responsible for ordering the weekly food delivery, preparing the session, providing the take home bags of food and recipes.

The intervention ran in the spring term of the 23/4 academic year. Letters were sent home in advance to parents/guardians of twelve children in the 3-4 year old classroom, to let them know the pilot intervention was planned and inviting them to take part in interviews before the start of the intervention and after the final session. They were offered £10 vouchers to the local supermarket of their choice as a thank you for participating in the pilot.

For six weeks there were weekly cooking sessions every Friday at Mansbridge Pre-school. Rather than the children bringing in packed lunches (as they did prior to the intervention), they were instead involved in the preparation of nutritious meals with staff at the ECEC – following meal plans that were created by Abri Housing, the HEYA team and a dietitian. The preparation of the meals. included: peeling and chopping of vegetables and vegetables, pouring dry ingredients into a bowl and mixing. ECEC staff members then took away what they had prepared and cooked the meals. The children ate the meals that they prepared over lunchtime with the ECEC staff, talking about the food and the cooking.

After each cooking session, the children were sent home with a bag of ingredients and the recipe to follow with their families. There was enough food in the bags for their families.

Prior to the running of the intervention baseline interviews were carried out with the manager and deputy manager at Mansbridge Pre-school as well as with 11 out of the 12 parents of children who are involved in the intervention. For the six weekly sessions a research student from the University of Southampton attended the setting to carry out observations to note any changes in the children's behaviours and attitudes towards the cooking and eating over the course of the intervention. Once the intervention was completed, a second interview was carried out with both the staff and the parents of the children. Only 10 out of 11 parents participating in an interview following the intervention. These interviews meant that any changes to attitudes or behaviours because of the intervention could be identified as well as reflections on the implementation of the intervention.

Key Reflections and Highlights

Overall, this intervention allowed for a six-week duration of provision of nutritious food to both pre-schoolers and their families who may otherwise be experiencing food insecurity. For the 6-week Spring 2024 term, pre-schoolers were exposed to a diverse range of meals with high nutritional value and portion control, allowing for the potential of some pre-schoolers to be introduced to a wide variety of fruit and vegetables. By engaging with both the parents and children, this helped to encourage more positive changes to their understanding, attitudes and behaviours around food and nutrition. Staff at Mansbridge Pre-school were also supported in improving their knowledge and attitudes around food and nutrition through participating in the HEYA Healthy Eating programme as well as via the recipe cards provided.

The running of the intervention was planned by all stakeholders then implementation was overseen by the staff at Mansbridge Pre-school. The effectiveness of the intervention for the different parties involved is detailed below. However, some key reflections of the process and feasibility of the intervention must be noted. Logistically, to run this intervention required a substantial amount of time and resources from Mansbridge Pre-school who are already stretched. The space available at the setting meant that one room had to be used for the preparation activities, separate to where the food was cooked meaning that the children never saw the food that they had prepared being cooked and turned into a meal. The limited space and amount of equipment required to make the food meant that a large amount of washing up and tidying was required, additional staff were required to be available to support this extra work. Children were appropriately supported at all times. In other settings where there are cooks or lunchtime assistants, this may be easier to manage.

There were further challenges we identified during the pilot study which merit consideration for other settings who aim to implement this intervention. With sufficient planning the challenges can be addressed and minimised or avoided.

Due to the amount of food being required for the intervention, online food orders were placed by Mansbridge Pre-school staff. Issues arose when there was no availability of certain food required for the dish and ingredients were being substituted. In addition, online shopping would only allow a certain number of items to your basket even when a higher quantity was required. As a temporary solution, staff would go to shops in their own time to find missing items.

Sometimes staff involved in the preparation of the food, or in the eating of the meal itself did not like certain food and so would not be involved meaning that replacement staff had to be agreed. The staff at Mansbridge Pre-school also had challenges of getting parents to not send their children to pre-school with a packed lunch on the day of the intervention. It emerged that this was not a situation where parents forgot their child does not need a packed lunch due to the intervention, but more so the parents not having confidence in the intervention and their child eating the food provided. ECEC staff were also sending the ingredients home with the parents for them to make the meals at home with the children. Each parent was provided with a bag at the start of the intervention to bring each week to take their food package home in, however there were challenges with getting parents to remember to bring their bags back every week to be refilled.

To address the engagement with parents, an option would be to share the recipes in advance so they can what children will be eating for the next session, after the staff have told children and built up excitement around the activity. A reminder text may help parents to send the bag back into school on the appropriate day and remind parents that there are expectations their children will take part, with reassurance that they will have enough to eat even if they are less keen on a particular part of a meal. As noted below, children ate around some items but still participated in the cooking and eating of the meal.

Pre-school Observations

Over the course of the six weekly cooking sessions there were some changes that were identified in the classroom observations. Overall, all the children were engaged in the weekly cooking sessions and wanted to help with the preparation of the food. Whilst all children stayed on task for the preparation if the meals, when it came to the eating of the meals it was harder for staff members to ensure the children were focused.

Preparation:

From the first week, all children had varying levels of knife skills when it came to the preparation of food, though they all knew how to hold a knife from the start. The knives purchased were designed for use with young children and recommended by other early years practitioners for safety. Specific permission to use the knives was not sought from parents as these were included in the Early Years activities. In the first week, four children cut themselves whilst learning to use knives, however over the course of the first few weeks this reduced. Where there were injuries, parents were not concerned by them when informed by staff of the incidents. One of the later weeks, children had to cut sweet potato which they all found quite challenging. However, with support from the staff they were able to do this and had no knife injuries. The swift progress made over just a few weeks demonstrates the benefits of maintaining the activity which build motor skills and confidence in food preparation.

Ingredients including leeks and onions were a challenge to get the children to engage with the chopping of them due to them making their eyes sting. This often led to disengagement of children for that portion of the activity. Over the course of the six weeks there was very little off-task behaviours or other health and safety concerns and sustained engagement was high. Only in a few situations were children distracted and off task. However, this was always noticed by staff members and the child was re-engaged into the activity. A couple of times children dropped food or the equipment on the floor. This was always dealt with appropriately by the staff supporting the activity. In the preparation phase staff often asked the children if they knew what the different ingredients were, or the equipment being used. This often sparked discussions and dialogue between the children and staff around what the ingredients were, including smelling it, the texture and tasting the ingredients at times.

Eating:

Children displayed typical behaviours of those exploring new foods. They often need repeated exposures to something new to build confidence, and this project introduced several new elements – food that may be unfamiliar, food preparation skills, cooking – over a very short period of time.

When it came to the eating of the food they prepared, this had mixed responses from the children. The most popular food the children were willing to try was the mac and cheese, all fruit and the stir fry and flat bread. Overall, it is not surprising that sweet foods and more familiar carbohydrates were well received. The least popular foods included most of the vegetables and the sweet potato curry. Children often commented positively on the fruits saying' I like it', 'it tastes really good'. When they sat down to eat the meals, there were times where children would make comments saying they do not like it before trying the meals. This was often when the meals had a lot of vegetables in them or a sauce which was not familiar to them. Comments were often said like "I don't like it', 'I want to take the vegetables out' when it came to the eating of the meals.

Each week some of children often started eating the meals with the ingredients they were most confident with. This included eating around the vegetables or the sauces to eat the pasta, noodles or flat bread. At times there was peer to peer-initiated interactions where a more confident child would try and encourage another child to eat by providing them with positive reinforcements, showing them, it is okay to eat and then making a comment such as 'it tastes really yummy, you try'. Some of the time this had a positive impact on the child then having the courage to try the food, a couple of times the children were still resistant to trying the food. An example of this is with the sour cream and children saying no to trying it. Once seeing everyone else is enjoying it, they try it and like it, so subsequently dip their wrap into it.

Sensory food education is a noted approach which can be used in early years, and guidance has been provided which aligns with the observations noted in this intervention, and recommendations for how this may be adapted or rolled out to other settings (8). Similar positive modelling of behaviour has been observed in the Good Grub Club with older children, where peers will encourage each other to try new foods and parents (who attend these holiday sessions) note that their children are more willing to try new foods in such environments where they have prepared the food and eat it with their friends.

Staff Interviews

Staff interviews were insightful in highlighting what they believed worked well and where they thought the constraints were in running the intervention. They noted the issues surrounding doing a food shop and making sure the right quantities were being bought and where food was being

substituted, making sure there was time factored in to go and get the rest of the food. This meant that the manager at Mansbridge in the morning was sometimes having to go to the shop to get any remaining ingredients that was not with the original order. Other constraints included the lack of space in the kitchen and where the recipe cards had the proportions for a family on them it was then a task for the staff to figure out what the proportions would be required for the group of children which required extra time. Staff also indicated that all the children were really engaged with the activity and wanted to get involved in making the food. Children would always ask questions in the lead up to the activity throughout the week, seemly being excited about it. However, staff said that whilst the children really enjoyed the cooking aspect of the activity this was not as much the case for the eating part of the intervention.

When it came to the preparation of the food, staff reflected on that there was not a real need to differentiate support for different children apart from knowing that some children would require more help than others when it came to chopping up ingredients. What they found most interesting was that you could tell from the children's chopping techniques who had done it before at home and who had not.

Role modelling played an important role when it came to the eating aspect of the activity to try and get the children to eat the food. Going forward with this intervention, Mansbridge pre-school staff recognised the importance of getting the parents/guardians involved more in the intervention. This could be both in the cooking phase and the eating phase and seeing how their children respond to the food in the ECEC setting. However, there was the awareness of the constraints to this due to lack of space. The effectiveness and need for the intervention were highlighted through the staff's passion for wanting to introduce new foods to the children, which were often more nutritious than their packed lunches, and wanting to get parents/guardians to engage in cooking with their children at home.

Parent Interviews

The parent interviews provided interesting insights into both the child's eating behaviours at home and also the families' habits. Reflecting on using the words "healthy eating" in the interventions title this meant that when being interviewed parents wanted to make sure it was clear that they do eat healthily at home even when this was not the focus on the question being asked. All 10 parents noted that there was no real change to the number of cooked meals that their child and family have in a week as a result of the intervention, with most parents saying that their child had in an average week at least six cooked meals before and after the intervention.

There was not a notable difference in the portions of fruit and vegetables that children were reported to have in a day before or after the intervention. Parents stated there was no real change and six said their children did not eat vegetables, only fruit. On average parents said that their children usually had four portions of fruit and veg both before and after. Their children's lunches at pre-school also did not change after the intervention and stayed the same, other than some parents commenting on sometimes adding a new piece of fruit which they had tried in a previous week's cooking sessions. Five of the parents noted that their child was eating a wider variety of food. Kiwi fruit, pomegranate, sweetcorn and pineapple were often mentioned in the interviews after the intervention as being new foods that children tried.

> "But he now likes kiwi from all the cooking".

The main noticeable changes that some parents were reporting was to their child's levels of curiosity to be involved in the preparation of cooking meals, their engagement when being involved and their child's confidence in relation to cooking. Parents commented on how excited their children were ahead of attending the cooking session.

> "She's been quite excited about the Fridays when it when it's cooking day at school as she calls it."
>
> "So,it's different, which is good because it encourages them more to try different things."
>
> "He's been more interested in foods like trying new things. Like I said, he doesn't necessarily like the new things, but he gives it a go where he said before he would, he wouldn't even try."
>
> "He tried some things that he wouldn't have necessarily tried at home."
>
> "It's definitely sort of piqued his interest, what was going on."
>
> "She couldn't sleep during the night so she was over excited for the cooking sessions."

Children being sent home with ingredients meant that families had a meal to cook over the weekend when they might otherwise opt for a takeaway, and they got to sit and eat together as a family. One family said that their child cooked one of the meals with their dad and granddad ,too, instead of just their mum which was reflected on that their child probably would not have otherwise had the opportunity to do so.

> "it was good in the sense that he got to do cooking with, like, he did it with me and with my husband. And he also did it with his granddad as well, so it was just nice that he got to do something with them that he wouldn't normally do, I guess. So that, like, encouraged them to do that with him."
>
> "I think it meant that we had like that family meal at the weekend where it was like weekend would be like more time we'd go out or get a takeaway or something. But because we had that there, then we did like make more of an effort to have that."

Parents reflected on the cost-of-living crisis and how this intervention helped them to recognise the cost of food. It also meant that they had extra food available at home to make nutritious meals for their families. There were mixed responses to the recipes amongst the parents, some were saying how a lot of them had vegetables which their child would not eat, and to improve the intervention they would recommend adding in meat to more of the meals. Other parents highlighted that the recipes were very long and trying to keep their child engaged with the cooking that entire time was difficult. However, some parents reflected on whether if they had done more preparation in advance that might have helped.

In terms of food shopping, the key challenge that parents commented on was the location of the shops as and the time it takes for them to do their food shop and trying to fit it in with family life. Some of the questions from the pre and post parent interviews demonstrate no or little change Only one person said they had used a food bank before; however, this was prior to having a family. Despite this, many comment on taking food from the free food box at the pre-school and how good that was at sometimes providing just a bit of additional food to what people get in their food shopping.

Key Recommendations for Implementation - Settings

These suggestions are aimed at supporting other ECEC who may want to implement similar provision into their setting. We suggest the following as key points to keep in mind:

- Space
    - Having enough space within your ECEC to be able to have a group of children involved in the preparation and cooking of the meals.
- Parent/Guardian Buy In
    - Make sure the parents/guardians of the children are both onboard and involved in the intervention from the beginning. This includes understanding why the intervention is important, understanding what it involves and agreeing for both them and their children to take part. This is to limit the potential of parents/guardians then sending their children in with a packed lunch. You may want to also involve the parents in one of the cooking sessions, too.
- Time
    - Time to order all the food and equipment needed for the activity. Sometimes additional time will be needed to buy ingredients that are either substituted or missing if you are doing a food order.
    - Time involved in planning activities and meals suitable for a young age group. This involves setting up of the activities or ingredients.
- Cost
    - Without additional funding to run this intervention, the cost of ingredients, equipment and potentially additional staffing could be a barrier for your ECEC setting.
- Staffing
    - Consider the volume of washing up, which may mean more staff is required to look after the children.
    - The number of staff required to support the children in the preparation of the meals, whilst other staff start on the cooking might mean additional staff is needed. Staffing over lunch to eat with the children could potentially mean that staff need to take their lunch break at a different time to usual.
    - To consider exploring and talking about foods as part of the wider curriculum, not just during the cook and eat session, so that there is increased exposure to the new foods being introduced and an ability to use all senses to explore them.
    - If possible, to enable children to see the cooking process so that they understand what happens in between the preparation stage and the eating stage.
    - Allow children to serve themselves at the lunch table so that they have some freedom of choice to select and taste.

There are additional resources available from the Department of Education that can support ECEC to offer food activities. See guidance on planning food activities with children and for sensory food education.

Considerations for wider implementation –Councils

We were fortunate in this pilot study to have engagement from key partners that enabled the us to work together to develop an intervention based on HEYA and previous activities led by Abri (Good Grub Club [GGC]). These cook-along sessions for older children were adapted for a younger age

group but already addressed some constraints of space, as GGC often takes place in community settings with portable cooking equipment.

The main cost of the pilot study was limited to the food costs and cooking equipment, funded by Abri. The cost of a dietitian to review the recipes and a research fellow to collect data for our analysis was met by the University of Southampton as part of their civic commitment. All staff (Mansbridge Pre-school, Southampton City Council, University of Southampton) completed this work in addition to their usual roles.

We can make available the data collection materials and guidance for their use with other groups who want to follow a similar process. The recipe cards, activity plans, and shopping lists are available online (here). We suggest further modifications to the recipe cards to enable repeated exposure to new ingredients over a longer period of time, to increase familiarity with them. This builds on the TasteEd approach.

The initial budget for the intervention to pay for food and cooking equipment was provided by Abri. The food costs for the six weeks, 12 families were £958.73. Cooking equipment was £724.55.

The cost of food could be met through small grants such as those available with Simply Health. We would suggest approaching local stores to ask if they would be willing to donate items to schools within their communities; for chain stores especially, this may be used to demonstrate engagement with their corporate social responsibility goals. There are calls to apply for funds to support projects such as these with Coop, Tesco for example. During previous crises (Shirley Towers fire) Sainsburys provided food to communities in Southampton. Establishing and maintaining a relationship where retailers are aware of opportunities to contribute to such projects would be advisable. This is feasible where there are partnerships in place already, such as the Southampton Food Partnership.

The pilot project demonstrated the value of bringing cooking sessions into early years settings, at a relatively low cost for cooking equipment which could be shared across settings in the city. We now have a range of recipe cards to use and could run this project again with a focus on food offered in the setting only and sending home the recipe cards rather than also supplying the ingredients to households. A crucial requirement for success of further implementation of this approach is ongoing early engagement with the setting, ensuring there are enthusiastic staff who have the capacity to deliver the cooking and tasting sessions as part of regular lessons.

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