CityCare Community Health Services

CENTRE FOR MENTAL HEALTH

SSBC small steps big changes CityCare

RSPH ROYAL SOCIETY FOR PUBLIC HEALTH VISION, VOICE AND PRACTICE

HEALTHY LIFESTYLES PATHWAY SERVICE

Outcome, process, and economic evaluation

November 2024

Contents

Executive Summary 2

Acknowledgements 6

Introduction 7

About the Healthy Lifestyle Pathway Programme 8

- Service design 8
- Literature background 9

Evaluation Questions and Evaluation Framework 12

Methodology 13

Findings: responding to process evaluation questions 15

- What is being delivered and how? 16
- How well have the different activities and outputs of the programmes supported the achievement of overall programme objectives? 21
- How has co-production shaped the service and what has been the benefit? 27
- How does the delivered intervention produce change? 28
- What has helped and hindered the wider workforce in developing an understanding of the potential benefits of early intervention? 31
- How has this understanding helped them support families both in their existing roles and in recognising and responding to the need for specialist support? 32
- What has helped or hindered parents in recognising a need and reaching out for help? 33
- How does the context affect implementation and outcomes? 37
- To what extent has the specialist service integrated into the local system and added value? 43
- What would have happened with families if they had not accessed the service? 45

Findings: responding to outcome evaluation questions 46

- How well has the service achieved behaviour change for families identified as at risk of being overweight or obese? 46
- Behavioural changes seen in quantitative data 50
- What has been the contribution of the initiative/actions taken to the observed outcomes (i.e., gross vs net outcomes)? 52
- Have outcomes been stronger for particular beneficiaries, activities or situations and why? 61

Findings: Economic evaluation 72

Conclusions 76
Recommendations 80
Limitations 83
References 84
Appendices 87

Executive Summary

The Children's Public Health 0-19 Service, commissioned by Nottingham CityCare and Small Steps Big Changes (SSBC), supports families in four Nottingham wards through the Healthy Lifestyles Pathway (HLP) service. Focusing on early intervention for childhood obesity, it offers tailored one-to-one and group sessions on nutrition, physical activity and parenting.

SSBC commissioned the Royal Society for Public Health to conduct a comprehensive process and impact evaluation of the HLP service. This evaluation includes the analysis of service data from all service users, alongside qualitive data from interviews with service users, staff from the referral pathway, HLP staff, and other local stakeholders involved in the programme. In addition, Centre for Mental Health was commissioned to undertake a high-level economic analysis of the intervention to assess its economic benefits.

The key findings can be summarised as follows:

Service design

- The HLP service meets an important public health need in Nottingham, and its design aligns with good practice explored within the literature reviewed, including local pilots and national guidance.

Service Delivery:

- Tailored one-to-one sessions were highly valued for practical, personalised advice (e.g., reducing sugar intake, reading food labels).
- Parents highlighted that they valued that the service was provided by knowledgeable and non-judgmental staff that focused on their needs.
- Group session options were appreciated, but families preferred the privacy and flexibility of individual sessions.
- Parents found resources to be practical, memorable and interactive. Resources such as BMI calculator wheels and nutritional guidance packs supported family engagement.

Impact on Families:

- Improvements in eating habits, including portion control, increased fruit/vegetable intake, and reduced sugary drinks/snacks.
- Physical activity levels rose significantly, with 72% of children achieving over three hours of activity weekly post-intervention (up from 42%).
- Parental confidence in supporting healthy lifestyles increased from 61% pre-intervention to 93% three months post-intervention.

Challenges for Families:

- Barriers included low income, fuel poverty, limited access to healthy foods or playgrounds, and language/cultural gaps.
- First-time parents faced knowledge gaps around weaning, physical activity, and child development.

Workforce Training and Coordination:

- Training boosted staff confidence in engaging families but highlighted a need for improved communication and clarity about the service's purpose.
- Some referral partners and families mistakenly viewed HLP as a weight management service.
- Collaboration with referral partners was strong but needed reinforcement to increase referral rates.

Sustained Behavioural Changes:

- Families reported ongoing benefits, including healthier cooking practices, reduced screen time, and consistent home-cooked meals.
- A notable rise in children eliminating sugary drinks (54% pre-intervention to 76% post-intervention).
- High parental motivation (90%) to sustain positive changes at follow-up.

System Integration:

- HLP filled a service gap, providing expertise and referrals to additional resources.
- The service operated below referral capacity, highlighting the need for strengthened referral pathways.

Evaluation and Co-Production:

- The design of the service is evidence-based and addresses an important public health in Nottingham. Examples of the evidence-base include evaluations from previous pilots/services, national guidelines, a cultural foods survey.
- Co-production with families shaped the service, with customisation for individual needs praised by participants.

Economic value:

- Service demonstrates strong value for money to the health system, with a return on investment of £6.92 for every £1 spent, based on quantified costs (£236,294.56) and benefits (£1,635,364.66).

Overall Outcomes:

- HLP demonstrated a substantial and sustained positive impact on family health behaviours, fostering healthier lifestyles through a tailored, supportive approach. Furthermore, the service demonstrates strong value for money to the health system.

Conclusions

The Healthy Lifestyles Pathway (HLP) delivers tailored one-to-one sessions for families, complemented by resources and group options. It empowers families to adopt healthier habits through personalised guidance, effective resources, and supportive staff. The programme improved dietary habits, physical activity, and parental confidence, but barriers like poverty and cultural misunderstandings persist. Co-production and holistic support enhanced outcomes, but misconceptions about HLP's role as a weight management service and underutilization highlight areas for improvement. Families valued the programme's flexibility and non-judgmental approach, leading to sustained positive changes in health behaviours.

Recommendations

Acceptability:

- Cultural Engagement: Enhance strategies to explore cultural foods and parenting practices using non-judgemental, professional curiosity. Provide training on key cultural practices to support co-production of solutions.
- Recommendation: Train staff on cultural sensitivity and effective communication to better engage families and address specific cultural needs.

Accessibility:

- Digital Resources: Develop a co-produced digital platform (e.g., app or website) to host resources, videos, and a parent forum.
- Service Awareness: Design promotional activities with parents and local services to raise awareness of self-referral routes.
- Universal Access: If funding allows, broaden referral criteria to make the service accessible to all families with babies or toddlers.

Quality:

- Training for Professionals: Offer additional training for referral partners to improve conversations about weight and increase acceptance of referrals.
- Expanding Referral Pathways: Establish additional partnerships with early years and primary care services to improve referral accessibility.

Enhanced Evaluation and Follow-Up Data Collection:

- **Increase Follow-Up Participation:** Expand follow-up efforts to include more participants and gather data on non-attendees to understand barriers and behaviour change over time.
- **Early Evaluation:** Embed evaluation mechanisms at the start of the programme for better outcome measurement and continuous improvement.

Assessment of Non-Participants and Counterfactual Development:

- **Understanding Non-Participants:** Gather insights into barriers faced by families who did not attend. Explore creating a matched comparison group for future iterations.
- **Recommendation:** Allocate resources for counterfactual development and collaboration with partner organisations.

Evaluating Impact:

- **Indirect Benefits:** Assess the programme's impact on parents, siblings, and the family environment to understand broader effects and inform future adaptations.
- **Refining Data Collection:** Review and update tools to enhance data relevance and quality, using insights from international questionnaires to understand family motivations and behaviours better.

Acknowledgements

The Royal Society for Public Health acknowledge the hard work of colleagues and partners in this report.

Authors from RSPH: Nelly Araujo, Rachel O'Riordan, Laura Smyth, Alejandro Gasteazoro Franco

Authors from Centre for Mental Health: Zoë McHayle

Contributors from Healthy Lifestyles Pathway: Lynn McGuinness and Katie Lovatt

Furthermore, special thanks to the parents who participated in this evaluation. Their time and effort are much appreciated.

Introduction

The Children's Public Health 0-19 Service, delivered by Nottingham CityCare and funded by Nottingham City Council Department of Public Health, is a critical provider of the Healthy Child Programme. Through universal contacts, this service promotes healthy lifestyles and supports children's healthy development across Nottingham City. Additionally, the Small Steps Big Changes (SSBC) initiative has commissioned the 0-19 Service to implement the Healthy Lifestyles Pathway Programme—a targeted early intervention aimed at supporting families with children at risk of childhood obesity and poor health outcomes. This programme addresses pressing health needs, fostering healthier long-term outcomes for children within the local community.

To assess the effectiveness and impact of this intervention, SSBC commissioned the Royal Society for Public Health to conduct a comprehensive process and impact evaluation of the Healthy Lifestyles Pathway. This evaluation includes the analysis of service data from all service users, alongside interviews with service users, staff from the referral pathway, HLP staff, and other local stakeholders involved in the programme. The primary objectives of this evaluation are to:

- Conduct a process evaluation, identifying factors that contribute to successful implementation and service delivery within Nottingham City and any potential improvements.
- Carry out an impact evaluation to assess the programme's contributions toward improved health outcomes for families.
- Aid service delivery providers in developing a longer-term data and evidence strategy.
- Advise commissioners on cost efficiencies associated with early intervention efforts.

This report outlines the findings of the evaluation, which ran from October 2023 to November 2024.

A mixed-methods approach was employed for this evaluation, incorporating both qualitative and quantitative methods to ensure a thorough and balanced analysis. This multi-faceted methodology supports a comprehensive understanding of the Healthy Lifestyles Pathway's processes and impact, laying the groundwork for informed decision-making and sustainable improvements in service delivery.

Furthermore, this report also contains a top level economic evaluation prepared by Centre for Mental Health, our evaluation partner.

About the Healthy Lifestyle Pathway Programme

Service design

The Children's Public Health 0-19 Service, delivered by Nottingham CityCare, is funded by Nottingham City Council Department of Public Health to deliver the Healthy Child Programme, using universal contacts to promote healthy lifestyles to promote healthy growth. Alongside this, Small Steps Big Changes (SSBC) a programme of activities funded through the National Lottery Community Fund's A Better Start Programme (2015-2025), commissioned the Children's Public Health 0-19 Service to deliver the Healthy Lifestyles Pathway, an early intervention for families with children at risk of childhood obesity and poor health outcomes within 4 Nottingham wards: Aspley, Bulwell, Hyson Green & Arboretum and St Ann's.

The service has the capacity to see up to 420 children annually and it has been designed to work holistically with families; helping them to set achievable goals around healthier lifestyles by offering a variety of one-to-one and group activities to help families.

Referral pathway and service offer

The service began taking referrals in September 2022 and is commissioned to deliver until March 2025.
The service accepts referrals from GPs and the 0-19 Service. The criteria is as follows for:

- From birth to 2 years olds: rapid weight gain (2+ weight centiles crossed), or weight above the 98th centile and 2+ centiles above length/height.
- 2 to 4 year olds: Body Mass Index (BMI) above 91st centile.

If the parent/carer accepts the referral, they are invited to complete a face-to-face initial assessment which explores needs and goal setting in line with 12 categories. Considering the following needs:

- Nutrition (appropriate milk feeds, textures, balance, portion size, sugar/salt)
- Play (active play, less screen time, safe spaces)
- Parenting (role modelling, responsive feeding, rewards, routine, and mealtimes)

Families are also offered virtual groups / face to face group sessions on topics such as:

- Moving from milk to meals/ adapting family meals
- Movement/screen time
- Portions/food groups
- Positive/responsive parenting

Parents/carers are offered 6 one to one sessions within a period of 4 to 6 months. Depending on the complexity of need, the sessions are delivered by a Nutritionist, Community Public Health Nurse, Public Health practitioner or a Childrens and Young Peoples Support Worker in the child's home. In addition, the service had complementary support from at least 5 student placements from a number of universities.

The service users are subject to the same terms and conditions as the other services that sit within the 0-19 service. The 'was not brought' and no contact policy applies – 3 missed contacts, including appointments or telephone calls, will result in a letter to the home address to inform the family of the missed contacts and that their support has not been completed. However, HLP team extended their application of this policy and gave more opportunities for families to re-engage with the service. The HLP team works closely with the health visiting team who are also apart of the 0-19 service, to ensure parents are receiving the support they need, and children are appropriately safeguarded.

Discharge and evaluation

Once completed the one-to-one sessions, parents/carers are congratulated and sent a certificate. Three months later, parents/carers are contacted by telephone call to complete an evaluation questionnaire exploring their experience with the service and what changes they have been able to maintain or build on. It is important to highlight that this questionnaire was introduced in September 2023 (one year after the service started) to both respond to parents' feedback and support the evaluation of the service impact.

Data and data collection

Most of service users' data is recorded on SystmOne, the organisational data recording system. However, some data might be recorded in spreadsheets and word documents, for example qualitative evaluation comments.

Literature background

RSPH conducted a high-level literature review to evaluate how the HLP service aligns with best practices and national guidelines in relation to promoting sustainable lifestyle changes that support children's long-term health. This review emphasised the multi-dimensional nature of childhood obesity and underscored the importance of accessible, family-centred, and culturally responsive interventions—key features integrated into the HLP service's design.

Childhood Obesity and Socioeconomic Factors in Nottingham

Childhood obesity is a pressing public health issue in Nottingham, with local data demonstrating that severe obesity among children continues to rise, exceeding the national average. This issue is exacerbated by Nottingham's socioeconomic profile, as it was ranked 17th most income-deprived of the 316 local authorities in England in 2019 (Office for National Statistics 2021). Reports highlight that nearly 30% of Nottingham's children live in low-income families, a factor closely linked with poor health outcomes, including obesity (Nottingham Insight 2024). A growing body of research links higher obesity rates with socio-economic deprivation, further complicated by cultural factors and access to services. Children in Nottingham who are from Black, Asian, and Mixed ethnic backgrounds show even higher obesity rates, indicating a need for culturally inclusive and accessible interventions.

Best Practices for Childhood Obesity Intervention

National guidance from the National Institute for Health and Care Excellence (NICE) supports a combination of diet, physical activity, and family-based support to manage and prevent childhood obesity effectively (NICE 2015). NICE's Quality Standards advocate for family involvement in co-producing and participating in interventions. This involvement has been shown to create a supportive environment that enhances programme outcomes by embedding lifestyle changes within family routines. In particular, the first 1,000 days of life (from conception to age two) are increasingly recognised as critical to shaping lifelong health. Interventions during this period, according to research by the House of Commons Health and Social Care Committee and the NIHR Policy Research Unit in Obesity, can produce the most significant behavioural changes. (House of Commons, Health, and Social Care Committee, 2019; NIHR Policy Research Unit in Obesity 2022).

NICE's recommendations for lifestyle management services (PH47) include tailoring interventions to individual family needs, continuous support from health professionals, and raising awareness among families and service providers. These guidelines provide a clear structure for developing interventions that are holistic, scalable, and evidence-based. Family-based behavioural interventions, such as those recommended by NICE, are widely supported in the literature as effective for producing both immediate and long-term weight management results in children. A meta-analysis by Berge and Everts (2011) found that programmes engaging the family as a whole produce sustained improvements in children's weight and lifestyle behaviours. Programmes that engage parents as primary agents of change have shown better outcomes compared to traditional child-only approaches (Golan and Crow 2012), especially where parents themselves adopt positive lifestyle changes.

Challenges and Barriers to Family-Based Interventions

Despite the evidence in favour of family-based interventions, numerous barriers affect their successful implementation. Parental engagement and sustained participation are major challenges, particularly among families facing socio-economic difficulties. Research by Van de Kolk (2019) indicates that lower engagement often correlates with factors such as single parenthood, economic hardship, family stress, and lower parental confidence. For instance, Gunnarsdottir et al. (2012) found that parents with lower confidence are more likely to drop out prematurely from programmes, leading to reduced effectiveness. Additionally, an NCMP evaluation highlighted key barriers to parental engagement, such as cultural differences in weight perception, difficulty in accessing services, and contradictory advice from health professionals (Viner et al 2020).

This underlines the importance of addressing these barriers through tailored, culturally sensitive interventions and by improving access to support services. The normalisation of larger body sizes within certain communities also complicates intervention efforts, as parents may not view their child's weight as a health concern. In fact, a meta-analysis by Alshahrani et al. (2021) shows that up to 55% of caregivers underestimate their child's weight status, a trend linked to the "normalisation theory" proposed by Robinson et al. (2017).

Innovative Approaches and Alternative Delivery Methods

Given the limitations of traditional in-person programmes, the use of digital or blended intervention models is gaining traction. These models combine face-to-face sessions with online resources, enhancing accessibility while providing a level of personalised support. Research by Liu et al. (2019) indicates that internet-based or blended programmes can extend reach and effectiveness, overcoming geographical and logistical barriers. The flexibility of blended models may improve participation rates among families who otherwise face challenges in attending regular, in-person sessions due to time or economic constraints.

Secondary Impacts of Family-Based Interventions

Beyond weight management, family-based interventions can foster secondary health benefits across the household. Studies by Ash et al. (2017) and Agaronov et al. (2018) demonstrate that when parents adopt healthier behaviours, such as increased physical activity or improved dietary habits, children are more likely to mirror these behaviours. Family-based programmes also contribute to improvements in other lifestyle areas, such as screen time and sleep quality, which are linked to childhood obesity. For instance, a meta-analysis by Zhang et al. (2022) found that family-centred interventions significantly reduce screen time, an important factor in preventing sedentary lifestyles among children. Moreover, Miller et al. (2015) notes that shorter sleep durations are linked to obesity, underscoring the value of addressing sleep habits as part of a holistic intervention approach.

The literature reviewed for the HLP programme highlights the multi-dimensional nature of childhood obesity and reinforces the importance of accessible, family-centred, and culturally responsive interventions. By embedding NICE’s guidelines into local programming, the HLP can better serve Nottingham’s diverse communities, promoting sustainable lifestyle changes that support children’s long-term health.

Evaluation Questions and Evaluation Framework

The scope of the evaluation includes an analysis of both the service process and outcomes. Accordingly, the commissioner provided a set of evaluation's questions that guided the development of a draft evaluation framework which was then refined with service staff and a group of 5 local parent champions (Appendix 1).

Process evaluation questions

- What is being delivered and how?
- How well have the different activities and outputs of the programmes supported the achievement of overall programme objectives?
- How has co-production shaped the service and what has been the benefit?
- How does the delivered intervention produce change?
- What has helped and hindered the wider workforce in developing an understanding of the potential benefits of early intervention?
- How has this understanding helped them support families both in their existing roles and in recognising and responding to the need for specialist support?
- What has helped or hindered parents in recognising a need and reaching out for help?
- How does the context affect implementation and outcomes?
- To what extent has the specialist service integrated into the local system and added value?

Outcome evaluation questions

- How well has the service achieved behaviour change for families identified as at risk of being overweight or obese?
- What has been the contribution of the initiative/actions taken to the observed outcomes (i.e., gross vs net outcomes)?
- Have outcomes been stronger for particular beneficiaries, activities or situations and why?
- What is the economic value of the service?

In addition, RSPH worked closely with service staff to develop a Theory of Change or diagrammatic description of the service to understand how it is meant to produce outcomes to then contrast with its actual delivery (Appendix 2).

Methodology

A mixed-methods approach was employed for this evaluation, incorporating both qualitative and quantitative methods to ensure a comprehensive and balanced analysis of the process and impact of the Healthy Lifestyles Pathway (HLP) service.

Qualitative Data Collection and Analysis
Qualitative data was gathered through a series of semi-structured interviews and focus groups, enabling in-depth exploration of the service's processes, challenges, successes, and overall effectiveness. The following methods were employed:

- Semi-Structured Interviews with Professionals: Interviews were conducted with seven professionals. Three participants worked directly within the HLP team (including team leads and delivery staff), three were part of the 0-19 service (including a family nurse), and one was a commissioner from the Local Authority. These interviews provided insights into both the operational and strategic aspects of the service, the perceived effectiveness of current practices, and potential areas for improvement.

- Semi-structured Interviews with Service users: To recruit participants for the service user interviews, we initially employed random selection; however, due to a lower-than-expected response rate, we collaborated with service staff to identify service users who had been engaged with the programme recently, which increased participation. To acknowledge participants' time, each was offered a £25 shopping voucher for their involvement in a single interview.

Regarding the characteristics of the households of the parents interviewed:
- 1 parent led a single-parent household.
- Most families lived in 2-3 bedroom flats, with only one family living in a house.

Furthermore:
- 5 were mothers, 2 were fathers
- 5 identified as African or Black African, 1 identified as Other White - Polish, 1 was not asked
- 4 parents had 1 child, 2 parents had 3 children, 1 parent had 4 children
- At referral, the child referred was aged: 4 were '9 months-2 years', 2 were '2-4 years', 1 was 'under 9 months'

- Focus Group with the Health Visiting Team: One focus group was held with four members of the health visiting team working in service wards. The session focused on their experiences with the referral process and exploring how the HLP service aligns with and supports their work.

To ensure informed consent, all interview and focus group participants received a project brief detailing the evaluation aims, provided both prior to and at the beginning of their sessions, and participants were asked to confirm and reconfirm their participation.

Following each session, participants received a verbal summary of the discussions to allow for feedback and to share preliminary findings with them.

The interview and focus group topic guides were developed in alignment with the evaluation framework and submitted to SSBC Research Learning and Evaluation group[1] for feedback and then registered with Nottinghamshire Healthcare NHS Foundation Trust. All sessions were transcribed, then systematically coded and analysed through thematic analysis, identifying key themes related to service delivery, impact, and opportunities for improvement.

Quantitative Data Collection and Analysis

Quantitative data was sourced from existing service user records within the HLP service, which included demographic details (e.g., ethnicity, postcode, and age) as well as lifestyle-related information gathered pre-, post-, and during follow-up stages of the intervention. Post-intervention feedback was also included.

CityCare provided the data in an Excel spreadsheet. The information on lifestyle is linked to the "Targeted Assessment" questionnaire, which is manually administered through one-on-one sessions with parents of children participating in the intervention.

The data collection process begins with recording information on paper forms during these sessions. These paper forms are subsequently transcribed into a digital system by a designated team administrator. Once digitised, the data undergoes a comprehensive quality review conducted by a Public Health Nutrition Lead or a Community Public Health Nurse to ensure accuracy and completeness before being prepared for analysis.

The dataset includes information on 199 children, with 185 aged 9 months to 4 years and 14 children under 9 months (see Table 1). The system classifies service users into two groups: the first group consists of children aged 9 months to 4 years, and the second group consists of children under 9 months of age[2]. Furthermore, data for the 9 months to 4 years consists of two intervention waves, one that began in 2023 and another that started in 2024.

The programme includes two "Targeted Assessments," conducted before and after the intervention (for instance, collecting information on BMI pre-intervention and post-intervention). However, approximately 31% of participants in the 2023 wave and 22% in the 2024 wave dropped out of the programme. That said, many of these participants received multiple sessions but had to disengage due to circumstances affecting their ability to continue.

---

[1] The Research, Evaluation and Learning Steering Group has been established as a formal subgroup of the SSBC Partnership Board (the Board). It has an advisory capacity and can make recommendations. It is not a formal decision-making group. Membership is multi-sector, including representation from commissioners, system leaders, academics, parents, and national/local experts in the identified areas of 'thought leadership'.

[2] The reason for this split is due to the need to have slight differences in the assessment questions depending on type of diet, for example it would not be appropriate to ask for types of foods if solids have not been introduced.

Additionally, a subset of participants has been requested to take part in a follow-up evaluation six months after the programme to assess the persistence of effects or changes not captured in the post-evaluation stage.

The data-gathering process is still ongoing:

a) Some children participating in the 2024 intervention have not completed the programme yet (classified as "ongoing").
b) Only 32% of participants aged 9 months to 4 years completed a follow-up evaluation six months after the programme[3].

Table 1. Descriptive statistics

	Aged 9m - 4yr (2022-2024)		Under 9 months (2022-2024)		Total	
	Total	%	Total	%	Total	%
Dropout	49	26.5%	4	28.6%	67	33.7%
Completed programme	122	65.9%	10	71.4%	132	65.9%
Ongoing, not yet completed	14	*7.6%*			*14*	7.0%
Total	*185*	100%	*14*	*100%*	*199*	*100%*

The analysis employed statistical methods to identify trends and patterns in service usage. Additionally, economic analysis techniques were applied to evaluate the cost-effectiveness of the intervention, with a focus on assessing potential financial benefits associated with early intervention.

This mixed-methods approach provided a comprehensive perspective, combining qualitative insights into service experiences with quantitative measures of service reach, usage, and outcomes. This methodology underpins the report's analysis of both the effectiveness of the HLP service and areas for future development.

Findings: responding to process evaluation questions

The process perspective of this evaluation describes the implementation of the HLP service and helps explain why its components succeeded or not at achieving its aims and objectives. Furthermore, there is a focus on what the intervention includes and how it is delivered to its target participants.

[3] This activity was introduced September 2023, therefore this data was not collected for families completing the programme before this date.

What is being delivered and how?

Background of the intervention

In an interview with a HLP commissioner from Nottingham City Council Department of Public Health, it was established that prior to COVID-19, efforts were underway to establish a nutrition pathway in partnership with City Care. However, resources were diverted to address pandemic-related challenges, delaying progress on the HLP programme. Following COVID, additional obstacles, such as staff shortages, further hindered the programme's implementation.

However, the service begun delivery in September 2022. The service was commissioned to address the increasing obesity rates among children entering reception as reported by the National Child Measurement Programme (NCMP). The design of the HLP service was completed by staff working within the 0 to 19 service, including a nutritionist.

HLP staff reported the intervention as evidence-based, including experiences from previous experiences in Nottingham, such as weight management programmes and pilots for early years.

To design the HLP, the team used evaluations from those programmes. However, they also explored evidence around what works for weight management programmes to understand acceptability e.g. The Healthy Beginnings study in Australia. The HLP team also reported researching about referral criteria for early intervention criteria e,g the IROC checklist[4], which looks at factors, including maternal obesity, maternal smoking. However, the HLP decided to remain with the referral criteria being about growth patterns.

The service is also evidence based in terms of what is being offered e.g it is family centred, there is practical information and behaviour change techniques are utilised.

Awareness of the service concept and scope

The HLP team demonstrated a strong shared understanding of the service concept. It was reported that the service is an early intervention ABC programme, through which the HLP team provides support and knowledge to families with children under the age of four who are identified as being at risk of childhood obesity. The service aims to help families make healthier lifestyle changes in the hope of preventing health complications and obesity in adulthood.

The referral criteria include children who have been identified to be at risk of childhood obesity. These children may have experienced rapid weight gain (under the age of 2), are an unhealthy weight, or have a BMI above the 91st centile category.

---

[4] Validation, Optimal Threshold Determination, and Clinical Utility of the Infant Risk of Overweight Checklist for Early Prevention of Child Overweight - PubMed

In terms of the service offer, The HLP team indicated that they offer up to 6 sessions with families and physically go out to deliver them in the families' home. Within each session there is a different pre prepared lesson plan, which can be tailored to individual needs.

The 0-19 service team members shared a similar view of the service concept, highlighting that the HLP service provides healthy lifestyle and nutritional support to families with children who have a potential risk of obesity as they get older. One of the 0-19 service staff mentioned that the service can help families in making necessary adjustments whilst also considering varying needs and cultures.

The HLP team highlighted that their referral requirements target families ready for change as the approach adopted is around behaviour change.

"We're expecting people to come to us with an expectation that we'll support them to implement healthy lifestyle changes that would support the health and development of their children and give them a better start in life" – HLP lead

A recurrent comment from the HLP team was that the service is family led, tailored and is intended for the whole family to learn. Once a referral is made, the HLP team, work with families to identify which sessions they would like to learn about, to help influence changes in their lifestyles. However, HLP will also provide input and make suggestions. HLP team indicated that they provide practical information including activities designed for families to identify their own required changes, as well as behaviour change techniques such as goal setting. Families can also choose what they want to learn about from a suite of sessions including: *The Eatwell guide and portion sizes, Physical activity and screen time, Sleep, Sugar, snacks and drinks, Fats, Salt, Food labelling, Cravings vs Hunger/ Responsive feeding (under 1's), Routine, role models and rewards, Fussy eating, First Foods, Balancing Milk and Meals.* Lifestyle aspects are also covered within sessions including physical activity, screen time, sleep and behaviour management around food.

The HLP team mentioned that between each visit, families have 2/3 weeks to work on specific smart goals which have been co-produced by both families and the team.

The referral pathway.

From the HLP team's perspective, the referral pathway operated as follows:

- Usually, a family is identified within the Children's Public Health 0-19 Service. This occurs when a child has a development review or a weight review at a clinic. The HLP team are reliant upon practitioners to refer into the service.
- The initial growth measurement used by the service is the one recorded on referral.
- The family will be introduced to the HLP service by a 0-19 practitioner, and briefly discuss healthy lifestyles. However, it was reported that this can be inconsistent depending on staff members level of training and understanding of the HLP service and confidence in having a conversation about rapid growth.

- Families are usually contacted within two weeks of referral into the service (Sometimes it takes longer to make initial contact with the families if they don't answer the phone).
- The first session involves an initial holistic assessment completed by either the public health nutrition lead, a community public health nurse or a public health practitioner.
- Depending on the level of intervention required, the HLP team will allocate the correct member of staff to be aligned with a family to deliver the service. If there are no complexities, HLP will allocate one of the support workers to work with the family.
- If a family has more complex needs e.g. safeguarding or a history of mental health issues, then either the public health nutrition lead or the community public health nurse would complete that assessment.
- After the first session there are up to five follow up sessions (6 sessions in total).
- The sessions are comprised of pre-prepared lesson plans that can be tailored to individual needs. This is completely family led and parents can decide which sessions they take or if they would like a bitesize of a combination of sessions within one.
- It was also reported that the HLP delivery team work together to design sessions and discuss what works best.
- 3 months after the 6 sessions there is a follow up evaluation where families are asked to complete a new assessment and to provide qualitative feedback about their experience with the service.

From the perspective of the 0-19 service staff and health visiting team, the referral pathway operated as follows:

- Practitioners visit a family home e.g. for a development review or a transfer in to area visit or any contact where they are measuring and weighing babies/children.
- For over two-year-olds they work out the Body Mass Index (BMI) and look at the growth charts.
- If a child is identified to have had a significant increase of over 2 centiles or their weight is above the 91st centile, regardless of whether their height is in proportion to the measurements that warrants a referral to the service.
- Families also have the option to make self-referrals.
- Practitioners will also have conversation with the families explaining their concerns, but also listening to family concerns around their weight.
- The practitioners will then gain consent from families for referral.
- The HLP team will then review the referral over the phone or via computer.
- Once the referral has been confirmed HLP will contact the family regarding what the package of care may look like.
- The HLP team will then visit the family at home for an initial assessment and then complete subsequent visits.
- Once the THP team begins work with the family, the designated caseload holder (Health Visitor) will hold this family on their UP (Universal Plus) caseload until the intervention in completed.

Referral partners

The children's public health, 0-19 service is the main referral partner, particularly working with health visitors and practitioners (for children under 5).

The HLP team reported that some stakeholders, such as GPs and the children's community paediatric dietitian team (currently undergoing significant changes), have been quite difficult to engage. They also work with SSBC funded community groups, these groups operate in the 4 SSBC Wards.

They also reported other established links and contacts

- *SSBC Small Steps Big Changes – Family mentor teams*
- *Early Help colleagues*
- *Local Authority Public Health colleagues*
- *Healthy Little Minds*

Internal Evaluation

The internal evaluation of the HLP service was discussed by the 0-19 service and the HLP team. The first stage is the initial assessment, which occurs during session one, this has also been referred to as the 'lifestyle questionnaire'.
With the lifestyle questionnaire the HLP team asked parents to rate their confidence and motivation (out of 10) to give their child the opportunity to have a healthy lifestyle.
This questionnaire asks families several questions including:

- *How much fruit and vegetables their child has*
- *If they have ultra processed food in their diet e.g high sugar foods, high fat foods and high salt foods*
- *The number of takeaways they are eating*
- *How much cooking they do within the household*
- *How much physical activity their child does*
- *How much screen time their child has*
- *How much sleep over a 24-hour period their child has*

Based upon the responses in the lifestyle questionnaire, the HLP team can tailor the intervention and work with the family to identify which sessions they would like to learn more about.

This same lifestyle questionnaire is also completed during the final session, also referred to as the midpoint evaluation. Once complete the HLP team compare both pre and midpoint lifestyle surveys, to see if there have been any improvements and to help measure the effectiveness of the evaluation. A growth review is also taken during this final session.

After 2 to 3 months, in the final contact it was reported that families complete a final evaluation (follow up, and also referred as the three months evaluation) where they complete the lifestyle survey again and complete another growth measurement. This evaluation is useful as it helps indicate any changes in lifestyle factors as well as parental confidence and motivation. The follow up evaluation also helps to identify if families are maintaining changes and whether the HLP team met their expectations within the sessions.

During the follow up, families also complete a qualitative feedback form to see if the service met their expectations, what they enjoyed most about the service, what changes they were able to make as a result (if any), if they had any recommendations about how HLP could improve and other comments.

"we do the last session's usually about four months after they've been referred into us and then we do a contact at six months after so It's usually a couple of months after the last intervention so that we can look at sustainability as well and, have they managed to keep up the work that they've done since the last session." – HLP staff member

The HLP team highlighted that they designed the evaluation organically, based on the need to support both families and evaluation efforts. However, they reflected that earlier input from an evaluation partner might have helped in collecting richer data and information.

Parents' perceptions of the service received

The parents interviewed had varied perceptions of the service before they received it. Some felt that the descriptions provided by referring professionals were vague, leaving them uncertain about what they had signed up for. Some parents felt they had done something 'wrong' or not what was best for their child. Once the HLP team spoke with them, parents reported feeling more at ease about accessing the service.

"I would say at first I was concerned, 'OK? We're not doing the best we could have done', 'cause when she didn't say it was bad, but she was just like if she was to continue on that trajectory, it might not be so healthy for her. So maybe we just need someone to just, you know, guide us through it 'cause she's our first baby, actually. So it's like we didn't have any prior experience. So yeah, it was a mixed feeling. But then our baby comes first, and we wanted the best for her. So yeah, we will, even though we thought a bit about like maybe we didn't do the best we could have done, we were still very eager to you know change things around and yeah, we're glad we did, yeah."
– Father of 1, 9 months-2 years girl

Most participants found the referral process itself to be straightforward and easy to access as they were referred by a professional. Most of the parents we spoke with in the interviews had been referred to the service by a health visitor, or a professional within the Mary Potter Centre[5], this was a coincidence as the service covers a wider area than the Mary Potter Centre does. This is demonstrated in different section of the report.

Reasons for referral

Most parents interviewed were referred to the HLP service following an appointment with a health professional regarding their child's growth. Some parents described the weight concerns as being related to the weaning process, while others hadn't realised there was an issue with their child's growth. One parent described their referral as the

[5] Mary Potter Centre is a central place to access a full range of health, social and community services in one of the SSBC wards.

culmination of a six-month effort to create a healthier lifestyle, after which they felt they needed further support. Another parent mentioned being referred by a family mentor from SSBC.

In general, parents interviewed were happy to be referred to the service as they saw it as some extra support they needed.

"[I felt] okay, because I was thinking it was going to be helpful."
– Mother of 3, referred for 9 months-2 years old boy

Some parents expressed feelings of concern and worry, about their child, their parenting, and the need for referral. However, once they had understood the purpose and model of the support provided and saw the potential benefits, all were happy for the referral. Some of the parents expressed that as their child was their first, they were grateful for the offer of support as they felt they were missing some information.

"this is my first baby. I don't know a lot about baby. You know how take care? I take care of her, you know." – Mother of 1, 9 months - 2 year old girl

First sessions
Following referral, the parents were contacted to arrange their first appointment. One parent asked them to explain the service at this point and they clarified the support on offer. The HLP team would arrange a time that was convenient for the parent, and the appointments were held in the family home. The team always had a pre-arranged appointment.

How well have the different activities and outputs of the programmes supported the achievement of overall programme objectives?

Parents perspectives about the support received
Parents interviewed highlighted a wide range of ways in which the activities, outputs, and approaches of the HLP service contributed to the overall programme objectives. All parents described the sessions and support received in positive ways and all reported having learnt and made changes to their lifestyles. Parents valued the service – one parent expressed how sad they were that their support was over, and that they would miss speaking with the team.

"Well, she told me on Friday that she'll be back in three months. You know, I feel so sad, I swear to God. Why? Three months? In three months it's Christmas… you [she] say 'You know, it's a service.' … I enjoy them, you know, coming, you know, discuss something. Make me feel good, you know" – Mother of 1, 9 months - 2 year old girl

Clarity and usefulness of information
Parents used the information given to make changes to their child's, and their whole family's, diets and beyond. The clarity of the information was vital for these changes to be beneficial. Parents considered the information to be extremely useful, especially the

information around food, portion sizes, and sugar. First time parents found the opportunity to ask questions and learn from professionals incredibly useful.

"we always want to learn more, this being the first baby, we have no experience about that. So we don't want to take anything for granted" – Father of 1, under 9 months old boy

Comprehensiveness

Parents felt like the service covered a range of topics, changes that could be made, and practical ways of how they implement those changes. Parents felt that they had been empowered for the future and how to continue with changes.

"It's a good achievement. You know for me, for the other parents. You know, she made and it taught me a lot of things apart from food." – Mother of 1, 9 months - 2 year old girl

Quality of resources

Most parents commented on the high quality of the resources used, with frequent remarks about those used in the sugar sessions. They described in detail the illustrations showing the sugar content in foods and drinks, which made a lasting impression. One parent even shared this illustration with their older children (4+ years).

"The one I remember is the content of food. So they did an interesting exercise. Coming with different food labels and asking me to spot which one has more sugar, you know so just that I found I found it valuable just to like, to my shock, you know, to see some things you feel like doesn't contain sugar. Like no, this is the amount of sugar in it. So it was really valid because that still sticks to my brain, you know using, find things you know ways of expressing things to us really help." – Father of 1, under 9 months old boy

Many of the parents also talked about the leaflets and other sources of information that the team provided on their visits.

"they give me a lot of books which I read, a lot of books, a lot of facts, booklets."
– Mother of 4, referred for 2-4 year old girl

Support and follow up

Parents felt well supported and able to ask questions and request follow up when needed. One parent discussed that they felt like they could not remember something from their session and so gave the team a call. One parent discussed having to pause the sessions due to the family travelling abroad for a visit to extended family. The team encouraged the parent to call and re-engage with the service on their return.

"Even when I when I don't know what to do. Sometimes I call her because I have their number." – Mother of 1, 9 months - 2 year old girl

Parents perspectives on outcomes

Benefits to the whole family

Parents found that their food and lifestyle habits changed as a result of the service. This changed the lifestyle of the whole family, due to changes in the way families shopped,

cooked, ate, and exercised. Participants expressed that the service had fundamentally changed their approaches.

"… regarding that sugar issue. We really know that we don't need to take more sugar because it's not even good." – Mother of 4, referred for 2-4 year old girl

Impact of behaviour change
In the interviews, the impacts of behaviour change varied from family to family. The overall cohort behaviour change itself is discussed later in this report.
Food – The support received helped families make cooking for and feeding babies easier. Most families with young children and toddlers felt more confident in selecting, preparing, and feeding meals to weaning babies. Parents also highlighted that as they grow, their children were becoming involved in the decision-making process around choosing meals and trying new foods. Parent also reported that they had started cooking together. Overall, parents observed that their children were eating healthier, more balanced diets.

"… we have been sticking to the diet they gave us" – Father of 1, under 9 months old boy

"the food portioning that that has also helped 5 portion fruits and all of that" – Father of 1, 9 months-2 years girl

Physical activity – Families expressed satisfaction with the changes they had made to increase physical activity. Parents discussed doing more activities together and encouraging older children to participate. While some parents mentioned challenges, they were still exploring plans and ideas to further increase physical activity for themselves and their children.

"I'm thinking of buying the bikes as well for [children] and for myself so we can go, let's say, to the gym. Bike, bike is good for us and save the money as well." – Mother of 3, referred for 2-4 year old boy

Impact on awareness, empowerment, and confidence
All parents talked about the ways in which their awareness, confidence, and empowerment had improved over the course of the HLP programme.

Awareness – Parents mentioned that their awareness had grown of topics such as sugar, hidden sugar, baby and toddler diets, and portion sizes, amongst other topics such as sleep and physical activity.

"Yeah, because before, they came here, honestly, I was just giving my kids because, I didn't know some of the things that I give them, they have a high sugar level in that. But then when they came here and they explain things to me. So that's the time I realised that, OK, these things that I'm giving them, they have a high sugar level. Even though I think that there was not a high sugar level in it. But then it, yeah, but then it does have some sugar level in it." – Mother of 3, referred for 9 months-2 years old boy

Empowerment and confidence– Parents felt empowered by the skills they had been taught by the HLP team. Parents felt empowered by the information and support provided on parenting topics, such as food, sleep, and activities. Skills such as knowing how to read food labels, judging how much sugar and fat is appropriate for a child, and creating healthy sleep habits are just a few of the skills parents felt they learnt.

Furthermore, parents talked of having the confidence to trust themselves when it came to decision making. Many parents expressed how they learnt not only how to make changes now, but also to know how to make informed decisions later. One parent stated:

"[They showed me] …how to be a mother, you know, and to know what to do." - Mother of 1, 9 months - 2 year old girl

Impact on budgets and finance

Parents interviewed discussed the impact of the programme on the cost of food. Whilst some reported that switching to a healthier diet was more expensive, some found it actually reduced costs. This could be related to the age of the child. Parents with older children found that switching to healthier food was more expensive due to the exchange of pre-packaged, processed foods to homemade meals. When parents were switching babies and toddlers from pre-packaged smoothies, baby foods, and toddler snacks to fresh fruits and vegetables snacks prepared at home, their cost of food went down. This is due to the high price of prepared foods for babies and toddlers, including formula milk and prepacked smoothies. HLP were able to advise parents on alternatives to help keep costs low.

"When I started I was using formula for my baby. When they came in they told me that something I can I can easily go for. It's this whole mix I can make that is good for for her and which I did and it's even economical. I don't need the formula was so expensive so I had to come down there." – Mother of 4, referred for 2-4 year old girl

However, parents still discussed that the cost of food was a barrier to making some changes due to the overall cost of food. One parent discussed the HLP team providing their family with vouchers for a food bank.

Impact on health

Health impacts on families included happier, more engaged children where sleep advice had been implemented. Some children were no longer exceeding their expected growth rates. Some parents reported that their children were not losing weight but had stopped gaining weight; their children had also met their expected growth rates for height. Parents were happy with this progress and saw this as real examples of the programme working for their children.

" [the gap between sessions was two weeks, it] was longer period of time and definitely like we managed to maintain the weight however he grew higher taller... So basically he maintained the weight even now he was checked last week and he's still on the same weight.

But he grow like 3 centimetres. So he's he's doing well." – Mother of 3, referred for 2-4 year old boy

One parent had discussed breastfeeding-related health concerns with a HLP practitioner who was able to advise and help the parent resolve the situation. Parents reported the changes made had improved their family. More exercise, more time spent as a family, and better diets were reported as some of the outcomes reported by parents when discussing health outcomes.

Parents' perspectives on the approaches used

Consistency with other services (IE NCT, health visitor, etc)

Parents commented on the ways in which advice provided was aligned with the advice given by other advisory services. This was particularly true for parents with younger babies when asking for advice on sleep. Parents also found an overlap with the information and advice given on obesity by other services.

Convenience

All parents commented on how easy the service was to access. The HLP team visited parents in their homes, on days and times that were best for the families. Several parents talked about being able to fit this support around work, which was important to them. They felt able to reschedule should they need to. Parents liked the home visits and the flexibility of the service.

"It was always in my home means it was always organised because… Whenever they came I was always free. So I didn't mind, when, what date they came. But then as I was going back to work,… then they started to work around my work schedule."– Mother of 1, 9 months – two years old girl

Personalisation to need/relevance to need/goals

Most of the parents talked about the service being tailored to their needs. This was done in many ways. Parents were given a choice about which topics they discussed. Some parents described being given the opportunity to talk and ask questions about anything to do with parenting.

"Honestly, they give you the chance so you can just talk to them like they listen. They give you chance and they explain things to you." – Mother of 3, referred for 9 months-2 years old boy

Parents themselves adapted the advice to their setting; one parent described themselves as doing 80-90% of the advice given, with leeway for circumstances. Another parent discussed speaking with the team about having a 'fussy' baby and not always being able to do what the team suggested, which was met with support and alterations to their advice.

Parents described some of the problems they were facing before HLP and how the support specifically targeted these issues. This was especially true for first time parents.

Some parents shared the concept of the service and some of the advice with friends who also had children. They reported that the main response was one of positive envy, with many friends expressing that they wished they could have had similar support, noting that nothing like this was available to them and that it would have been extremely helpful in their parenting journey. This feedback made the HLP parents value the service even more.

"Yeah, I told them. But said something that you are so lucky at our time there's no nothing like that. Or oh, my God. Is it because you have a baby at that age? You know I said no. You ask, they give, you know because I ask them really help. So they are very surprised. They're jealous that "Oh my God is you joking?" – Mother of 1, 9 months - 2 year old girl

Competent staff
All parents described the staff's competence, approach, and compassion as a clear benefit of the service. The staff were described as being a listening ear, very detailed, and able to explain things for anyone to understand. Parents said that the staff were kind, friendly, well-liked by their children, and supportive. The sessions were described as a building of a mutual understanding of the challenges faced and solutions that needed to be implemented.

"the team was quite important, not making you feel like you're doing it all wrong. And all of that, was more like you're doing perfectly, but we can maybe just offer you some more tips… So it's not like you're throwing out everything you've been doing. It's just more like, oh, let's just adjust. Let's add this to it and see how it goes. So it makes you feel part of it, makes you feel part of the improvement" – Father of 1, 9 months-2 years girl

The parents praised the staff throughout their interviews, often coming back to the way they had been treated and listened to. The staff's time, care, and advice were highly valued.

Suggested improvements
While the views of parents were overwhelmingly positive, some parents had suggestions for future working to improve the service:

Groups – Some parents commented that, while they appreciated the 1:1 support, they would have also liked the opportunity to meet other parents using the programme. This would allow them to discuss their experiences, access additional resources, and provide or receive peer support. Such group interactions could take place alongside the 1:1 support.

More information at referral – Some parents mentioned they were unclear about the service when initially referred. They would have preferred a clearer description of the service at the referral stage. One parent suggested it would have been helpful to receive set appointment times upon referral, enabling them to plan their work schedules around these sessions.

Week-to-week feedback – A few parents recommended that feedback on progress be given on a weekly basis. One parent specifically mentioned they would have liked their child to be weighed more frequently.

Digital offer – While most parents praised the existing resources, some expressed a need for more online information. One parent shared that they struggled with the volume of paper resources provided and would have preferred this information in a digital format, such as an app to track changes, recipes, and other resources.

Service catalogue – One parent suggested creating a service catalogue for local parenting support services, as some parents mentioned they were not always aware of what other support options were available to them.

Cultural understanding – One parent raised the topic of cultural differences in parenting, as discussed in another section. They suggested that the team could benefit from a better understanding of cultural differences. This parent felt it was essential for the team to distinguish between cultural differences and what might be genuinely beneficial or harmful for their child.

How has co-production shaped the service and what has been the benefit?

HLP's understanding of service co-production

During the interviews with the HLP staff, there was considerable discussion about the benefits of service co-production and how they collaborated to create the HLP. Service user feedback is collected at the end of the intervention, during the final evaluation phase. Families are asked for feedback on what they have liked about the sessions, the number of sessions they attended, and what they would like more or less of. The feedback is predominantly positive, confirming both acceptability and satisfaction with the service.

"So to be fair, I haven't had any negative feedback or experiences with parents or they've never told me anything negative that's come from our sessions, which is really good. Whether they're not telling me is a different thing, but it we've had really positive and especially the sessions that I've been doing with my families, really positive feedback and things like that" – HLP staff (delivery)

It was also highlighted that the service users from previous pilots helped design the service.

"the original service was designed based on evaluation that we had with previous pilots within the city, families that had previously experienced some support around healthy lifestyles weight management. Their evaluation for that experience fed into this service". – HLP lead

The HLP team mentioned that feedback helped to culturally educate the service team through informal learnings from patient feedback e.g around cultural diets and different

cooking methods. It was also highlighted that co-production with stakeholders helped improve the way the service was promoted.

Feedback from service users also highlighted that families wanted more support and a recap of all the sessions. The HLP team suggested that as result of this feedback received, they have plans to improve their digital intervention offer to fill in service gaps and make the most of the intervention e.g. directing parents for more information and uploading videos as a reminder to parents.

Feedback from families also influenced what was included within the resource kits. Furthermore, feedback from participants who attended group sessions such as First Foods and Balancing Milk and Meals, suggested that these were important resources for families. Therefore, the HLP team are planning to run a group for children over the age of 1 for the prevention of fussy eating. This service would be for universal contacts and for everyone to attend.

Parents' views of co-production

While never discussed explicitly, all interviewed parents noted that they were given the opportunity to design a programme tailored to their needs and interests. Parents appreciated this chance to personalise the service they received. Given a selection of topics, they chose those they felt were most relevant to their family. Parents also felt the HLP team provided ample opportunity to ask any parenting-related questions and to discuss any concerns they had about their children.

However, one parent raised concerns about the level of cultural understanding within the HLP team and suggested that further co-production with parents and parenting experts from diverse cultural backgrounds could be beneficial. This approach, they felt, would help create a service that is more attuned to the differences between cultures.

How does the delivered intervention produce change?

HLP staff's perceptions of what works well

The HLP staff interviewed provided a variety of opinions regarding how the HLP offer helps families make changes. When discussing this with the HLP team, they mentioned that in general there was a good level overall satisfaction from families. The team mentioned that the service is beneficial for families, it meets their needs, and they enjoy sessions.

'in terms of the intervention itself, I think I really, truly believe that it is having such a big impact on the families that we work with' – HLP lead

The quality of the resources was highlighted and the team were grateful to have had the funding, time and ability to create each resource, including the sugar, salt and fat kits, the goodie bags, the online resources and the practical activities. However, one respondent did mention that it would have been nice to have them produced in a more professional manner.

“We have had really good funding for the service, which means we have definitely been able to have use creativity with resource development and do some trial and error with resources and the sessions that we do because of that funding, I think if the budget was much tighter then we potentially wouldn't have been able to do quite so much trial and error with resources potentially” – HLP lead

The personalisation of the service to individual needs was also highlighted as a benefit by HLP including the bespoke kits for visual realisation and families having the option to choose and have as many sessions as they want (within the six sessions offered).
The impact on behaviour change was highlighted as a great value to the families receiving the HLP service. This is because early intervention is so critical, especially whilst parents have full control over the lifestyle of their child. The HLP team highlighted that due to the service families have a better understanding of what foods have less nutrition value and alternatives to increase their fruit and fibre intake and an increased understanding of the guide around portion sizes and how many portions of different food groups a child under four should be offered.

The practicality of the sessions was also perceived as a great value to the families receiving the service e.g sugar, salt and fat kits. Whereby families lay out pictures and place them in order to see how much sugar is in each food (highest to lowest game). This is good for visual realisation, and it hits home. There are also practical ideas provided for physical activity e.g. what they can do at home to save costs. Families receive a goodie bag with balloons and chalk included.

Parents’ views on what was most helpful

Advice on how to reach goals

Parents interviewed talked about the support to set and reach goals between the support sessions as a key element to their behaviour change process.
“The other thing is what I remember was useful. We every week we we try to set up like a goal to reach for next time.” – Mother of 3, referred for 2-4 year old boy

Education and parenting support

One parent discussed the feeling of having a baby and being sent home with little further support or input:

“Because I feel like when I gave birth, there wasn't really any much help… it's just that you've just been put into the world just to go and be a mom. Like, there's stuff you don't know.” – Mother of 1, 9 months – two years old girl
This was echoed in some of the other conversations with parents. Many found the HLP service helpful due to the opportunity to ask any questions about parenting. The above parent went on to describe the impact that HLP had had on her:

“I just know that I had a great experience and I feel like it should be something continue to a lot of lot more families can benefit from it.” – Mother of 1, 9 months – two years old girl

Parents felt that there was a gap in the support provided to new parents around the basics of sleep, weaning, and healthy eating. Some mentioned having some of this

support from the health visitor, but most parents would have liked more targeted support, such as was provided by HLP.

Other parents resonated with this experience and highlighted that the opportunity to just ask questions and get feedback from professionals was useful.

Expert input
Parents interviewed felt the input from experts in nutrition, healthy lifestyles, and general parenting was useful. The advice around specific kinds of food, activities, and sleep were highlighted as extremely helpful by parents.

Comprehensiveness of the service
When initially asked what was most helpful and important to them, some of the parents interviewed replied that the entire service was valuable. They attributed this to the comprehensive package of support and education provided in each session.

"You know you will need help people to stop you, that they know a lot about those things. Then get it from them." – Mother of 1, 9 months - 2 year old girl

"They tried to take us through different journeys. I think probably the first part was looking into the was the position of sleeping then look now into his feeding" – Father of 1, under 9 months old boy

Topic specific sessions
For the parents interviewed, the most memorable element of the service were the topic specific sessions.

"We discussed about the foods and the portions that that are supposed to be given, yeah. Then like the type of food that we that we should have like a daily meals. So yeah, we discuss those things and then, like the sugar level that we have to give in a day and all those things. Yeah, we discussed all those things." – Mother of 3, referred for 9 months-2 years old boy

The sugar session, in particular, was seen as effective and useful by most of the parents interviewed. Many parents remarked on how surprising it was to learn just how much sugar is in everyday foods. Interviewers noted how much this session stood out to participants, as it was frequently mentioned across the interviews. Parents spoke about the session's practical demonstration and the impact it had on reducing their family's sugar consumption.
"When they spoke about like the sugars in like food and the fact that in like foods and stuff that we thought like, you know, you think, 'Oh no, it's just a croissant. There's not much sugar in it', but you you're not. You don't know until you see like a like, a display of how much sugar is it in it. And you're like, Oh my gosh." – Mother of 1, 9 months – two years old girl

Parents discussed additional sessions as well. Some parents also highlighted other food-focused sessions, such as those on portion sizes, fats, and oils. Non-food topics were also considered useful. For instance, the sleep session was particularly helpful for parents of babies and young toddlers.

“Yeah, I think it's the sleep session part that was the most memorable part. Yeah, 'cause after we implemented it was a lot of changes actually.” – Father of 1, 9 months-2 years girl

Sessions on exercise and physical activity were also popular, with parents appreciating the team’s suggestions on ways to keep children active.

“So now I was introduced on how. I can find time for dancing. There's time for dancing a dance. I try for physical activity. We go out, we go out.” – Mother of 4, referred for 2-4 year old girl

Comments from 3-month evaluation

Similarly, a question asked participants, for their favourite session and why. The most referenced session was the sugar session (12 responses), followed by eatwell (6 responses) and the fat session (5 responses). Other respondents mentioned sleep, portion control, fussy eating and salt. One participant said ‘all sessions’.

What has helped and hindered the wider workforce in developing an understanding of the potential benefits of early intervention?

During interviews with HLP staff, workforce-related barriers to the service were discussed, particularly regarding challenges in receiving referrals. Most referrals have come from the 0-19 service, with which they already have established links.
Barriers to referrals were attributed to perceptions of staff competence and confidence, especially their ability to hold sensitive conversations about childhood obesity. Additionally, it was noted that educating staff and identifying useful tools took considerable time. For example, Nottingham City’s parent-held red book does not contain a BMI chart.

To address these challenges, HLP staff suggested increased collaboration with stakeholders to improve referral processes and enhance staff training, focusing on both referrals and communication around growth patterns. Discussing expected growth should be standard, enabling parents to develop realistic expectations when their child’s growth deviates from these patterns. The HLP team has also introduced BMI calculator wheels and growth charts as practical tools.
Another challenge highlighted was that professionals may initially struggle to understand the service’s criteria, with some resistance possibly due to the perceived additional workload. There is also occasional misunderstanding among both families and professionals, as the HLP service is sometimes mistakenly seen as a weight management programme, rather than a broader healthy lifestyles initiative.

Missed opportunities

Conversely, staff from the 0-19 service were asked about their perceptions in terms of missed opportunities. Their responses highlighted that they do not feel as though they have had any missed opportunities. However, it was highlighted that it can sometimes

be difficult for staff to have the confidence to have those conversations with families and not feel though they are upsetting a parent.

However, one staff member highlighted that when the service first began, they were not making as many referrals as they are now and noted how the HLP resources have enabled them to do so.

"whereas now I've changed what I do as a practitioner and I've made it part of the review. Whereas before it was like having to think and I think what's helped now is we have packs when we go out to do the reviews, the service leaflet is in the pack. So, it prompts you to talk about it." – 0-19 service staff

How has this understanding helped them support families both in their existing roles and in recognising and responding to the need for specialist support?

HLP influences in practice

The 0-19 service staff were asked if the HLP service had any influence in their day to day practice. 0-19 staff reacted positively to this question, highlighting the benefits that the service has had in meeting families' needs, increasing service capacity and taking the pressure of staff. The 0-19 team and health visiting team indicated that the service fits in well and complements their services, as it completes the whole pathway for the health visiting service and how they can offer support to families. Furthermore, the referral pathway was described as a simple and straightforward.
"If we didn't have the team to refer to, then obviously we would potentially have more children needing that sort of pathway package of care that our people on the ground would need to deliver." – 0-19 service staff

"In comparison, you've got a specialised team who can spend a little bit more time with those families, giving that advice and support and follow through on that. Where it is more difficult for us in terms of our capacity and staffing at the moment" – 0-19 service staff

Furthermore, it was made clear that the HLP helps fill in a service gap, as prior to the service there was nothing in place and they were unsure who to refer to, instead they would signpost to a GP or potentially dietitians for issues related to weight. One 0-19 staff member highlighted that they can only give baseline advice therefore they need a specialist team in place such as HLP to support.

A health visiting team member expressed concerns that cuts to the service would make their jobs more difficult. Furthermore, the 0-19 team mentioned that without the HLP service a range of long term and lifestyle impacts maybe more likely to occur including more cases of obesity, mental and dental health impacts, less physical activity and potentially eating issues.

"I suppose it's opened practitioners' eyes to the potential impact that having a sudden increase in a centile and being over a certain BMI. How that how that impacts the child going forward, if that makes sense" – 0-19 service staff

A health visiting team member within the focus group mentioned that it is a shame that the service is only for 0–4-year-olds. As the service could also benefit infant/ primary school aged children.

HLP staff' perceptions cultural and language factors
A member of the HLP team noted that a big challenge has been understanding cultural differences around foods for example, terminology that might be different in various cultures. It was also reported by the HLP team that there has been some misunderstanding with the service interpreters around the meaning of 'traditional foods'.

"Something as simple as brown rice can be very easily misinterpreted if it's not unpicked with parents. Brown rice could be used to describe traditional dishes cooked with ghee and onions that turns white rice into brown rice. Another example might be rice cooked with coconut milk, making it a higher fat dish than cooked with water." – HLP lead

The HLP team also highlighted that some families are not originally from England and may not understand the food in supermarkets or how to cook them due to language barriers.

What has helped or hindered parents in recognising a need and reaching out for help?

HLP staff's perceptions of the service accessibility and acceptability
HLP staff were asked about their perceptions of the service, including accessibility and acceptability as part of the referral pathway. Responses in relation to accessibility highlighted the convenience of the service, particularly in terms of flexibility, as families can engage as much as they would like and can attend as many sessions as they wish. The HLP is not prescriptive programme, it is tailored to family needs. The HLP team mentioned that they think the service would lose engagement if it wasn't so tailored to individual needs and families appreciated the personalisation of the service.
The ease of the referral process was also highlighted as a benefit of the service as all staff within the children's public health service, work within the same system, enabling them to run reports and identify children.

The number of sessions were also perceived as an appropriate amount (6 sessions in total).

'Great amount of sessions, I don't think we've really had that many families who have said six isn't enough' – HLP staff lead

The service was also perceived as accessible because sessions were delivered within the family home (apart from the group sessions and fussy eating sessions).
The HLP team also indicated that they are working to make the service more culturally appropriate, but it is still a challenge. To overcome this, they have used interpreters to ensure messages are fully interpreted and understood. They have also used resources created by Enfield Council such as cultural appropriate Eatwell guides.

The socio-economic status of referrals was also perceived as a service barrier as those living in deprived areas or fuel poverty may not have access to high-quality, low-cost foods. Some service users may also live in accommodation without cooking facilities. To overcome this, the service team have created resources such as 'no cook recipes' in addition to ideas of reducing costs of foods. They are also supplying families (with cooking facilities) food vouchers when in crisis (from the Trussell Trust).

The attitudes of some parents were also perceived as a service barrier as some parents may not want change, may feel blamed or do not see any issue with their child's health status.

"Oh no, my child's fine and all of that". – HLP staff (delivery)

However, the HLP team emphasised that they always ensure honest conversation with parents, as if they are not ready to change, they are told that they are welcome to come back when they are ready to do so.

The costs of food were also mentioned as a barrier to healthy eating as it is often cheaper to buy fast and processed foods, than it is to buy healthy and nutritious foods. A 0-19 service staff member highlighted that people may buy microwaveable, frozen or fast food because they do not have the finances to buy fresh fruit and vegetables. It was also highlighted that some people do not think or understand the benefits of frozen, tinned or dried alternatives for fruit and vegetables.

The HLP staff also mentioned that feedback from families included recaps for all the sessions and a digital offer. Therefore the HLP team are hoping to improve their digital offer (webpage) which may help families further engage with the information and maintain changes.

The team would also like to have more guidance around what is needed to evaluate effectively. It was also reported that they only have feedback from families that have opted to use the service. It is very difficult to identify those families who have chosen not to take up the offer.

HLP's perceptions of why some parents might not take up the HLP service

A few reasons were mentioned as to why some parents may not take up the HLP service, reasons suggested included a lack of motivation to change, not being ready to change and their financial status.

"So obviously, sometimes we get parents that may not want to change, but they kind of don't want to tell you when you initially going out. So that can be one of the challenges that we have found, not a lot, but obviously it has come up" – HLP staff (delivery)

It was highlighted that some families are from the most deprived areas in Nottingham, with low incomes with limited access to high quality, cheap foods. Some families are living in hotels with limited cooking facilities. To help adjust to this barrier, the HLP team created cost effective meal ideas and the team are supplying families with food vouchers when in crisis.

"I think in general you've mentioned some of the barriers already with things like income I mean, obviously we're in a financial crisis families don't have access all the time to the healthy foods we are supplying families with food vouchers" – HLP lead

0-19 service team and health visiting team perceptions of the service, including accessibility and acceptability

In terms of the 0-19 service team and health visiting team perception of the service, there were a mixture of opinions regarding accessibility and acceptability. It was suggested that some parents did not really understand what they were going to get out of the service or the meaning of rapid growth. However, other families did fully engage, finding the referral process easy and were accepting of the help and support.

"Yeah, I'd say it's 50:50. Some parents are like, oh, yes, please. So, yeah It's a very mixed reaction." – 0-19 service staff

The 0-19 service staff highlighted the usefulness of the information provided such as the importance of hidden sugars, exercise, and screen time. One member of the health visiting team highlighted that is useful to be able to offer families the HLP service as it allows families to have the choice to receive support. Furthermore, the convenience of the service was also highlighted by members of health visiting team such as the benefits of the online focus groups. It is also empowering parents to deal with issues as the pathway is so supportive.

"The empowerment, you know, empowering parents through this service and the delivery of it and having that extra resource as well to help the family. And so that they consent to it, they engage with it and they are so it's like dealing with an issue that has been identified and being supported to be able to do that. So that's I think what the healthy lifestyle programme enables, it's a welcome thing for our service." – Health visiting team member (focus group)

It was observed by the 0-19 service staff, that it may be difficult to engage some families into the service due to differing perceptions of what a healthy child looks like.

'I feel like some people think a chunky bouncing baby, that's what babies are supposed to be'. – 0-19 service staff

Some professionals believed this perception might be related to cultural factors, while others did not. One professional noted that parents from ethnic minority backgrounds

might be more accepting of the service, whereas another observed that, in some cultures, a healthy baby may be perceived as one who is overweight or obese. However, it was generally mentioned that, regardless of background, parents can sometimes become defensive when this issue is raised.

Within the semi-structured interviews and focus group, the 0-19 service team and the health visiting team suggested several approaches to reduce service barriers:

- The importance of reassuring families that being referred to the service is not a negative. Instead, it is about how they can help them make things better.
- If a family initially does not want to consent to referral, it was suggested that a member of the HLP team can give them a quick call. This is a useful approach as they are experts and can provide more detail about the offer. It was suggested that adopting this approach has in turn resulted in more successful referrals.
- A health visiting team member highlighted that with time their confidence has grown, particularly in having these conversations, resulting in them communicating the issue more effectively to families. This has also resulted in the conversation being received better.
- Another said that they think addressing the referral as a whole family approach as opposed to, it being something just about the child is important. As they can enjoy activities together.
- The importance of setting the scene prior to the conversation with prompts such as "*how are things? have you got any concerns?*". This is because some parents may raise the issue themselves.
- The importance of not judging clients was also highlighted "*I do just try and say that we're not here to judge you and we're just here to see if there's anything else we can help to implement making a healthier choice".*
- Highlighted the importance of working with families and children to make small changes that are realistic to families.
- The HLP team leaflet is also very help to understand the support HLP can offer

Perceptions of diets and cultural diets

There were a variety of responses from HLP Staff and the 0-19 service team regarding food diets and perceptions as a barrier for parents to recognise their need of support. It was mentioned by one member of the 0-19 service that sometimes people do not perceive nutrition and diet as an important aspect of development. It was observed that culture can play an important role in a child's diet. It was noted that some cultures view a well-fed, fuller-bodied baby as a sign of good health, so parents may become defensive if this perception is questioned.

In addition, 0-19 service staff mentioned that a lack of awareness about the nutritional values of foods can also be a barrier. For example, one interviewee highlighted the case of a mother who was unaware that she was overfeeding her child.

"she was breastfeeding and giving 5 bottles of formula a day with [wheat based instant cereal] in it, It's like a thickener which has extra calories in …. but she couldn't see why that was a problem. She thought she was doing best by giving this baby all this nutrition, but actually she couldn't see the risks of what that could be doing long term." – 0-19 service staff

A health visiting team member emphasised the importance of balance and understanding cultural foods. The team should explain to clients that they can still have their traditional foods but there are adjustments that could be made.

Finally, the HLP team mentioned that to help overcome this, a member of staff initiated a cultural food survey which was distributed to staff and the wider to the community via social media. This was circulated to get a better understanding around cultural foods.

Parents' perceptions of why someone might not take up or complete the service

Early drop out due to change in circumstances
One parent interviewed shared that they had had to drop out of the programme early due to a period of extended travel. This highlights the potential for families to miss out if they temporarily move out of area, for example having their housing changed by the council.
Unawareness of the service/missed opportunities
One parent spoke of their friends who lived in the same area and had similar aged children who would have benefitted from the support provided by the HLP team. This could have been missed opportunities if they had been eligible for the service.

How does the context affect implementation and outcomes?

Parent work patterns
During interviews, parents highlighted how work patterns were a major factor in how they divided household labour and childcare, including food shopping and cooking. Some families arranged it so that one parent worked nights while the other worked days. Others divided the tasks with one parent working flexibly or remotely, while some had an extended family member come to help with the child during the early years.

Family health outcomes
Most parents interviewed spoke of health in the wider family, including their own. Some parents did not have any health concerns for themselves. Others had concerns for extended family members.
One parent spoke of losing a loved one to a preventable disease and this being a motivation point for them to improve their families' health and wellbeing, as they drew the connection between an unhealthy lifestyle and negative health outcomes.

"Mainly for me is I'm happy that I've made the change because I know that [a family member] passed away from, like, [name of the disease], and they had really poor diet and stuff. So that's that's like my motivation to like, you know, make changes as well with me and my kid because I I don't want to have another loss source, you know, go down that road again." – Mother of 1, 9 months – two years old girl

Parent mental health and wellbeing

One mother spoke of feeling lost after having the baby, and it taking time to come back to herself by learning every day. Lots of the parents discussed feeling stressed due to the amount that has to be done to work and care for a child, alongside household work.

"So when I had the baby, you know, since my life changed, really, you know, I don't remember myself anymore. I don't know who I am. You know, I have to be struggle with the things because I have to be learning every day, you know something I understand" – Mother of 1, 9 months - 2 year old girl

Parent and family migration

One parent discussed the impact of visas and not having recourse to public funds, having to ask for foodbank vouchers, despite both parents working and balancing childcare between them. Another discussed the impact of migrating to the UK for work and how that has impacted their parenting journey.

"…that problem has been there: the cost of food. Yeah, you know, because I came on a student visa… We don't have access to any public money… [I work] Twice in a week or that's three times in a week at always, night… Oh, I said [to HLP team member] introduce me to a food bank." – Mother of 4, referred for 2-4 year old girl

Access to support networks

Most parents had some access to friends or family members with children who they would discuss parenting with. Some parents expressed feeling isolated due to their family being far apart. One in particular discussed feeling like they had no one to discuss parenting with until HLP.

Infant feeding choices

One mother spoke of the difficulties of stopping breastfeeding when her baby would not take a bottle or a dummy. She felt that this difficulty had contributed to the need for referral to the HLP service. Other parents also found that the support was helpful in understanding how to balance breastfeeding and weaning. For example, one family felt that weaning had contributed to their baby's weight gain and appreciated the support from the HLP team to understand portion sizes and what foods were appropriate.

"she [baby] did breast exclusive for six months and then another. Breastfeeding for another six months, which was more of like 70/30 breastfeeding to other solid foods. So I think that might have contributed to her weight gain." – Father of 1, 9 months-2 years girl

Older (4+years) children influences

In the interviews, one issue raised by some parents of older children was the autonomy their children had in making decisions about their health. With access to the internet and money, parents were concerned about their older children making healthy choices regarding food and physical activity. One parent expressed it as follows:

"I would say you know this generation is a mobile phone generation. So, it's like they would just prefer stay on the sofa and it's hard even to send them out with the dogs for a walk. So I

have to of make the dogs ready when they are back from school and say ‘come on, let's go for a walk’.” – Mother of 3, referred for 2-4 year old boy

Places where food is obtained

Parents interviewed described a variety of places where they obtained food. Most parents mentioned supermarkets, such as Aldi and Asda, which they found to be easily accessible. Some parents also mentioned more culturally specific food shops, such as African or Afro-Caribbean stores, noting that access varied depending on location and the specific ingredients needed. One parent expressed disappointment at only having local access to a supermarket specialised on frozen and ready made foods, as they felt the food quality there was not ideal. Another parent spoke about a local weekend fresh food market, while yet another highlighted the limited snack options in their local shop and noted the lack of available fruit and vegetables:

“if you want to get like broccoli, no chance. But you want a chocolate we got” – Mother of 3, referred for 2-4 year old boy

Some parents discussed having particular needs around food or dietary requirements. One parent discussed needing foodbank vouchers and that this was something the team had helped them with. Another parent discussed keeping a religious diet and needing to check packaging to ensure food was prepared correctly.
Parents found that whilst access to fruit and vegetables was easier to provide at home, when out and about it was harder to choose healthy options.

Cost of food

Parents interviewed seemed to differ in their opinions on the cost of food, even though all found food to be expensive. Some parents found that switching from pre-packaged baby and toddler food to homemade alternatives to be cheaper; others found that switching their whole family from pre-packaged, processed foods to a diet high in fruits and vegetables was more expensive that what they had been eating previously.

“That one [barrier] is always that problem has been there: the cost of food” – Mother of 4, referred for 2-4 year old girl

This could be due to the high cost of baby and toddler specific packaged food, that market themselves as “healthy”, in comparison to cheap pre-packaged, processed foods for those who have passed weaning into adulthood. The switch to the recommended diet was a different financial process depending on the individual family’s food habits.

Time spent cooking

Parents highlighted the time cost of cooking from scratch. This was especially important in the single parent household we spoke with and families with other children. A few parents spoke about the benefits of working from home when it came to cooking.

“So working from home, …I need to go and to do this so. But now I try to stick to my you know, work hours like let's do my work first, then we have time to cook.” – Mother of 3, referred for 2-4 year old boy

How and where food is eaten

Eating meals together was mentioned by some parents. This was particularly highlighted by those eating traditional foods as an opportunity for children to try their traditional cultural diet.

"when we're probably during lunch, we have a local diet, so he [baby] takes it, participates with that with us, but for other ones, you know what we eat in the morning is not the same thing as what he is going to consume in the morning." – Father of 1, under 9 months old boy

Cooking and food storage facilities

All parents interviewed stated that they had adequate cooking and food storage facilities. This was not a barrier for any of the parents.

"my kitchen's not that big, but it's OK." – Mother of 4, referred for 2-4 year old girl

However, this is an aspect of the project that could have been a barrier for those in temporary accommodation, or those experiencing economic hardship and were unable to pay for utilities or replacement appliances.

Types of food consumed

Parents from a variety of cultures discussed the types of food they feed their children. Parents discussed eating foods from their own and other cultures. Parents discussed eating foods such as pizza, Chinese, and Indian foods. Most parents discussed including traditional, cultural food in their children's diet. All parents discussed the problems of snack foods, foods high in sugar and fat, and the challenges of convenience foods.

"(Parents having pizza), but for baby, it must be fresh fruit" – Mother of 1, 9 months - 2 year old girl

Some parents discussed the fact that they were less careful with their diet than they were with their children's diet. Some parents preferred their traditional culture's food and other's preferred easy to cook items like pizza. There was a combination of wanting their children to eat like them and parents wanting their children to not follow their 'bad habits'.

Traditional foods used

Traditional foods from a variety of cultures were discussed across the interviews. Some parents felt that they were not supposed to share their traditional foods with their child when they were very young, but the HLP team encouraged them to let their children try these foods early on to develop a taste for them. However, other parents found that the HLP team discouraged certain traditional practices regarding baby food. One parent, in particular, mentioned that the baby food commonly used in their home country—fed to

all the babies they knew—was deemed unhealthy by the HLP team. This left the parent feeling uncertain about whose advice to follow:

"We know that when you take pap, you get more strong, you get more agile, you get more. That is the knowledge I have. So while it's like maybe it's changing from to say, oh, don't give baby this kind of thing now because it contains this, that and that, you know, and how do I prove or disprove that? The only thing I can use to prove that is that I have family, I have cousins, I have friends, like we grew up from this same type of food." – Father of 1, under 9 months old boy

As detailed above, some parents found that cultural aspects of how their family fed, weaned, and cared for babies were different to the suggested diets and care processes for babies recommended by the HLP team. Some were confused by the conflict of the options for child-rearing choices.

Physical activity in context

Physical activity featured heavily in the parent interviews. Access was the main barrier. Lack of parks and suitable playgrounds near the family home was highlighted. Parents discussed having to take public transport, or even drive, to reach a suitable park.

"So yeah, there has been [a barrier] by in terms of time. So the time is more pointed out to the example I'm making. I would love for him to be at the park. Probably if I can find a way to just drop grandma and him in a bigger space. I've been mentioning that, but I've not been able to actually do that because of my time, because they can't go. I would like say the park is not that close to me, so I think it's like maybe like 10 minutes or 15 minute drive, you know, from where I stay." – Father of 1, under 9 months old boy

For families accessing gyms and other leisure facilities, it was a similar challenge. The time and monetary costs were major factors in accessing facilities, especially ones that had an additional cost to use. Free facilities were valued by parents, especially when close by.

One parent talked about the challenge of exercising since they became a parent.

"Before I was a parent, and when I wake up in the morning, I like to do exercise" - Mother of 1, 9 months - 2 year old girl

They went on to say that now there is no time to be able to engage in exercise in the same way now they have a baby and are back in their paid work role.

Parents interviewed also discussed using weekends for family activities, with some noting that they were more able to travel further for physical activity during this time. Parents with older (4+ years) children mentioned seeking additional services and support to help them engage in physical activities. For parents with children in the project's target age range, local parks, walks, and playgroups were the primary sources of physical activity. Since most of the families lived in flats, playing in a garden was not an option. The one family with access to a garden had a trampoline, which the children

used regularly after school. These factors highlight how access to outdoor spaces can influence family participation in physical activities.

Factors in decision making

Parenting decisions were discussed in the interviews and a wide range of factors were identified as potential sources of information and influences on decisions regarding food, physical activity, sleep, and other aspects of parenting. The extent to which these factors held influence on parents also affected how they responded to the advice and information provided by the HLP team. Some parents welcomed all the advice, but others were unsure of how to apply the advice alongside cultural, familial, and traditional approaches to parenting.

Two of the parents talked explicitly about familial expectations and opinions. They both discussed, that in their culture and specific families, the extended family, such as their parents and grandparents, expected to have input on how the child would be raised.

"And then I think family also, like I said, we're first time parent, so the grandmothers would always ask, they would always have their opinions always. You're supposed to do this. You're supposed to do that." – Father of 1, 9 months-2 years girl

One parent interviewed had an extended family member staying with them to help with childcare while the baby was under one. This brought the difference between the HLP advice and cultural approaches to the forefront of their decision making process. Matching this with the advice from the HLP service felt difficult. One parent discussed the mismatch over food. Another the discrepancy in baby carrying techniques.

"…culturally about it is how we carry baby as well too. You know, I don't know, maybe you've seen most of Africans as well too. They have to back [carry] their baby… I feared people around saying, oh, it's not good to back [carry] baby." – Father of 1, under 9 months old boy

One topic of discussion was how babies are cared for during working hours. Most parents had organised their work schedules so that one parent or a childcare provider could care for the baby while the other worked. One family mentioned that, in their culture, it is common for extended family members to care for children while the parents are at work. They described working from home and doing household chores with the baby in a carrier to help the baby sleep, even when the baby wasn't due for a nap. This was a usual practice for them. However, they also highlighted the physical strain this placed on their bodies and noted that having the option not to carry the baby constantly was beneficial.
However, parents were aware that the service needed to have best practices and had to give advice on baby rearing that was in line with guidance and legislation. Parents recognised the benefits that the service could have from being more aware of other cultural parenting options and being informed as to the benefits and drawbacks of these approaches. It was suggested that perhaps the team being more open to discussion of these approaches might be beneficial to parents and practitioners.

Some parents interviewed reported that parenting was stressful, but that they on the whole enjoyed being parents and looked forward to their children growing up, being able to share memories and interests. They reported being flexible around babies learning to eat new foods and how they could continue that beyond foods to physical activities and interests.

To what extent has the specialist service integrated into the local system and added value?

Staff's perceptions of the HLP service offer to them and families

The 0-19 service staff and the health visiting team had a variety of responses regarding the HLP service offer to them and to families. Particularly regarding the support provided by the HLP team, their working relationship with HLP staff, feedback received from parents and the resources provided.

It was highlighted that a variety of support was provided by the HLP team including the resources and all the training that they received. The HLP team were described as helpful, knowledgeable and passionate about what they do. The HLP team also attended the 0-19 service and health visiting team meetings.

Regarding the working relationship with the HLP team, the 0-19 service staff highlighted that the team are very strength based and knowledgeable and that both teams work in a similar way. The HLP team were referred to as a lovely team who build strong relationships with clients. They were also referred to as easy to get a hold off, approachable and reachable. One staff member highlighted how the HLP have helped improve the way in which they refer clients.

"Obviously they record in our records on system one, in the child's record. So, I see the advice that they've given and the information that they share with the clients. So yeah, I feel like I've kind of changed a couple of things that ways that I give advice as well." – 0-19 staff member

Within a focus group with the health visiting team, one individual highlighted that the HLP team have always been very forthcoming to help whether it be a referral online or over the phone. They are also good at getting back to the health visiting team to let them know if a referral has been accepted or if it has not met their criteria.

"So like as a practitioner, I feel quite reassured that actually, yes, that is sitting on my caseload but I know that the team are actively working and I know they keep you updated with what's happening with it, which is really reassuring." – Member of the Health Visiting Team (Focus group)

A 0-19 staff member highlighted that most parents are initially quite negative about the idea of the service as they may feel a bit defensive about what they are giving their child to eat. However, another staff member mentioned that they appreciated HLP's support when families have initially declined the service. As the HLP team have gone on to

approach unsure families directly and better explain the service, this has helped in creating more referrals.

"They're really helpful in saying just send them over and we'll give them a call to introduce the service to them and just reassure them a bit over the phone and then it also gives another opportunity to get that consent from the parent from their side as well." – Member of the Health Visiting Team (Focus group)

In terms of useful resources, the 0-19 service staff and the health visiting team mentioned the benefits of the 0-19 leaflet and the targeted lifestyle leaflet for advice, the charts and information around portion sizes, sugar, and milk intake and the first foods training.

Another 0-19 staff member highlighted that when the service first got going, they were not referring as much as they are now because they were having to think on the spot, whereas now they have made it part of the review, due to being outlined within the resources e.g. packs and the service leaflet.

"So it prompts you to talk about it." – 0-19 service staff

In terms of using BMI as an indicator, it was reported by the HLP team that "initially when we started the programme, because we weren't a weight management programme, it was felt that we shouldn't be weighing children as an outcome but actually families are requesting that and we have we made a change to say that we would offer an evaluation a weight measurement. [As a result of measuring the weight of children] We are seeing a reduction in children's rapid growth and a reduction in their BMI scores as well." – HLP lead

The HLP team also highlighted that they are building on their growth training for staff, particularly regarding the use and issue of BMI calculator wheels, so that when staff are in the home they can demonstrate what the BMI is and what percentile it's on. The team also issue in growth charts within the toolkits which are a useful visual guide.

HLP and wider early childhood services

In the interview with the one of the commissioners, they discussed the role of the HLP within a wider set of early childhood services, highlighting some ambiguity in how it integrates with other nutrition-related interventions, such as breastfeeding and weaning support. they suggested that better coordination between different services could improve efficiency and effectiveness.

Furthermore, they highlighted the difficulty in maintaining "gold-standard" services due to funding limitations and the challenge of integrating individual interventions into broader service frameworks. they emphasised the importance of evaluating the programme against broader health outcomes and competing priorities, such as speech and language therapy or mental health services. Ultimately, the challenge lies in balancing cost-effectiveness with the delivery of meaningful health outcomes for children and their families.

What would have happened with families if they had not accessed the service?

In the interviews, parents mentioned three main sources of information as alternatives to the HLP:

- internet/social media
- family and friends
- healthcare professionals

Internet/social media

Most of the parents mentioned that they would be looking for information on the internet, and most mentioned social media in some format. The interviewed parent, the other parent or partner, and older (4+years) children all used the internet to find information about health, recipe ideas, and baby rearing tips. Social media and web searches were also concerned sources of ideas for physical activities and other activities to do with children.

"I just literally I had to go to Google and check immediately. So you can go there and search for information. Google you go to Internet and social media."– Mother of 4, referred for 2-4 year old girl

One parent mentioned that websites from her own country were sometimes contradictory to the advice given by HLP, even when it came to advice around older (4+ years) children. The parent felt this was confusing.

Some parents only mentioned the internet as their source of alternative information, even when provided with a list of options including healthcare providers, friends, family, and others.

Family and friends

As explored in a previous sections, some parents relied heavily on advice from family members such as parents and siblings who were also parents.

"Definitely, definitely from friends, family. My, one of my family members stays around there very close so and he has three boys. So definitely I will always turn to ask what's going on with baby's not feeling too well here. What happened, you know, so I would turn to family and friends." – Father of 1, under 9 months old boy

Some parents mentioned speaking with friends and colleagues who are also parents as a source of information.

Health care professionals

Midwives and health visitors were also highlighted as main sources of information on babies and toddlers, particularly for first time parents.

"Oh, or, I will go to the midwife in Mary Potter because as first as a first mother you know, not easy." – Mother of 1, 9 months - 2 year old girl

The Mary Potter Centre was highlighted for several parents as an example of somewhere they felt they could get support from healthcare providers. One parent specifically mentioned their GP as a source of information, and that if others could not advise, they would have gone there. One parent worked in healthcare and would have sought the advice of their colleagues within their workplace.

Accessing other services
Some parents were accessing support from other services at the same time as HLP. Parents that were having support from other services mostly included family mentors provided by SSBC, or other services within the local area, such as health visitors, midwives, stay and play, and cooking classes. No families stated they had a social worker or family support worker at the time of interview. For support around health concerns, one family was accessing a speech and language therapist.

Findings: responding to outcome evaluation questions

This section of the evaluation assesses the changes that can be attributed to the HLP service. The expected outcome of the HLP service is that children and their families will be eating healthier meals and be more physically active. This will also bring awareness and influence behaviour change in friends, families and wider community. Subsequently, this is expected to impact on their weight, oral health and taste palettes.

How well has the service achieved behaviour change for families identified as at risk of being overweight or obese?

Self-reported behaviour change from parent interviews

Advice on certain topics
Some parents interviewed expressed that they felt more competent in some of the areas of support offered by HLP, and therefore there was little change in their behaviours. This was relevant particularly to physical activity. However, this did not apply to most parents.

Changes in eating habits of children
Portion sizes – Changes in children's portion sizes were a discussion with most of the parents interviewed. This included the portion sizes of fruit and vegetables.
"when I'm giving them fruits that I should measure my palm." – Mother of 3, referred for 9 months-2 years old boy

Most of the parents had reduced the amount they were feeding their children. One parent highlighted that their child had previously been eating a bowl of cereal alongside every meal, but as they reduced this, the child no longer needed that and was not left hungry.

What they are eating – Most parents interviewed discussed the kinds of food they were feeding their children. Some of the parents commented on the fact that the programme had encouraged them to change from pre-prepared baby foods, such as fruit pouches and smoothies, to homemade versions. This reduced the number of sugary drinks a child having, by only giving smoothies at home.

"We don't do sweet drinks or anything, so we just do the smoothies at home or just, you know, give out the fruits naturally like that." – Father of 1, 9 months-2 years girl

One family highlighted the recommendation of allergen exposure and the benefits therein. The family had followed the instructions as a preventative measure to reacting to allergens.

How these changes were made
Most parents discussed learning to read labels and packaging and using the resources on portion sizes and diet plans provided by the HLP team as two useful strategies in making these changes.

"I now read the back of stuff and think twice before I buy stuff to give to my child" – Mother of 1, 9 months – two years old girl

Changes to eating habits of other members of the family
Parents also discussed changing the child's older siblings and the parents' own diets alongside the changes made to the child referred for support. The same strategies were used, such as checking labels, cutting portion sizes, and using the guidance provided by the HLP team.

Changes in sleep
A couple of parents with babies discussed receiving support from the HLP team around healthy sleep habits for babies. Suggestions included bedtime routines, low lighting, storytelling, switching baby to own bed, and nap adjustments. Both reported this being helpful.

"Because now she's [baby's] even happier in the day when she wakes up she's happy, she's not you know up and down, rather than being cranky from not having good sleep." – Father of 1, 9 months-2 years girl

Changes in parenting
Some parents mentioned that the child they were referred for was their first, and they felt they needed support in learning how to parent. One parent specifically spoke about the support the HLP team provided when they felt unsure about how to respond to her baby's crying.

"So I learned a lot from that from that one too, because when she's crying, I'll be petting her, running up and down, and I'll feel tired too, you know, I'll be tired. "What to do? So what's

wrong with you? Please help me. What's wrong with you?" But since (HLP) coming, I learned a lot. You know how to handle the situation, you know, as when she's crying. I know what to do." – Mother of 1, 9 months - 2 year old girl

The HLP team also provided support and advice for parents around looking after themselves and safe practices around crying.

Some parents discussed that HLP had helped them understand how to test new foods with babies and how to be flexible around babies' food preferences.

Parents also developed their own strategies following reflection with the HLP team. One parent discussed that they had started keeping crisps, and other high sugar and fat snacks, in closed cupboards as they had noticed that their children would refuse their dinner if they could see those foods. This helped the family cut down on the amount of high sugar and fat snacks that the children were eating.

Changes in physical activity
A parent interviewed discussed the way in which the HLP team had recommended local community groups for babies and toddlers. This meant that they had started regularly going to a group where their child could be active. Another parent discussed the ways in which their baby was growing and changing during the support from HLP, as it coincided with the baby learning to crawl.

Things that didn't work for some parents
One parent interviewed expressed that the food diary approach to tracking their children's food intake was difficult to use due to a number of factors, including the fast pace of life as a parent, concern over accuracies, and, perhaps most importantly, the number of caretakers and their commitment to the process of tracking the children's food.

Continued behaviour change
Whilst all parents interviewed reported considerable changes in behaviours, changing circumstances—such as shifts in job roles, childcare arrangements, access to outdoor spaces, and housing—were some of the barriers to maintaining the changes introduced by the programme. Some parents found the prospect of sustaining these changes while managing significant life transitions to be daunting. Others mentioned challenges with their own food habits, such as struggling with sugar intake, which also made it difficult to sustain the changes.
However, some parents had already begun planning their next steps. Plans included purchasing exercise equipment, such as bikes, joining clubs and gyms, and gaining access to a car to enable the family to explore additional physical activity options.

How changes were implemented

Changes for small children (0-4yrs) – For younger children, parents interviewed spoke of gradually changing some things within their diets, such as adding more and more water to juice over time to get the children used to the taste of water. Distraction from thinking about food was also important for families. Some parents spoke of eating from boredom

and the introduction of games and activities to keep little children busy helped them reduce snacking and additional food intake. One parent framed this change as a surprise, introducing physical activity and healthy foods through games and activities suggested by the HLP team and other online resources.

Parent decisions – Some parents interviewed spoke of 'just stopping' certain items of food within the diets of their children, due to the information received from HLP. Many spoke of the sugar levels in particular within pre packaged baby food, such as meals, smoothies and fruit pouches.

"I found out the information about the amount of sugar. How much sugar is used to produce ready made baby meal. So I stopped this. This was really surprising to hear this for me."
– Mother of 3, referred for 2-4 year old boy

Some parents interviewed replaced ready-made foods with homemade options, and therefore effectively controlled the portions and sugar levels their children were having.

Whole family changes – According to the parents interviewed, some changes were made by entire families, often introduced by the parent who had engaged with the HLP service. Most parents viewed gradual change as the most effective approach. One parent mentioned keeping sweet treats in the home but opting for lower-sugar options. Replacements like these were considered a good strategy by most parents.

"I think we pay more attention to this, especially those labels and try to like, stick to healthy snacks because we are all, we love like sweets. You know that's the problem. You know, trying to it's still something sweet but less sugary, more healthy? Yes." – Mother of 3, referred for 2-4 year old boy

Parents interviewed highlighted that their families introduced more physical and skill-building activities for their children, including older ones not within the age range of the support. Parents spoke about ensuring all their children were engaged in physical activity, including signing older children up for activities recommended by the HLP team and colleagues in the Family Mentor services with SSBC. Families also introduced healthy sleep habits to their older children, with parents making changes for themselves as well. The wellbeing of the entire family was seen as important.

Changes for older children (4+ yrs) – Some parents interviewed found it helpful to share information provided by the HLP service, such as examples of sugar portions, with their older children. Parents also took practical steps, including cooking and eating together as a family, adjusting meal times to reduce hunger and snacking, and planning physical activities for everyone to join. One parent encouraged her older children to explore new foods by agreeing to try any recipe they wanted to make.

Perceived behaviour change by HLP staff

The main areas of perceived behaviour change by the HLP team were regarding changes in eating habits of children, changes in parenting and changes in eating habits of other members of the family.

The HLP team mentioned that families are achieving the goals that they set for themselves, whether it be around lifestyle factors such as increased physical activity and/or improvements in their diets e.g reducing sugar intake. Regarding changes in parenting, the team mentioned that the service is helping parents/guardians to feel more confident to feed their children healthy.

It was also highlighted by the HLP team that there has been a reduction in rapid growth and BMI of children.

It was also observed by HLP staff that the intervention has not only helped the child receiving the service but also their immediate family, extended family and friends. It was reported that one family enrolled in the service had additional family living with them, including grandparents who suffered with diabetes. At the end of the intervention, during the final evaluation, it had been reported that the grandparent's diabetes were also under control.

"So it's really nice, like we're helping the child, but we're also helping the whole family as well. And that's what we found as well. Like we get loads of good feedback for the child but we get loads of good feedback for the whole family as well, which is really nice." – HLP staff (delivery)

Perceived behaviour changes by the 0-19 service team and the health visiting team

The 0-19 service team highlighted a variety of perceived behaviour changes including lifestyle changes, changes in eating habits, impacts to the wider family and other changes including 'whole health'.

Lifestyle changes included increased exercising and changes in eating habits e.g. changes in snacks given to children due to increased knowledge about hidden sugars. Staff also highlighted the benefits of the intervention to the whole family.

"The whole family has actually made lots of changes and lost significant amounts of weight, you know, and babies have been, you know, obviously more healthy" – 0-19 service staff

Lastly, the health visiting team highlighted that the service impacted other issues, including recognising and identifying issues such as speech and if necessary, referring them to child speech therapy or if they are worried about a child's hearing, they can refer them to a children's hearing assessment centre.
The health visiting team also mentioned the potential long-term impacts of the intervention on the National Child Measurement Programme.

A staff member from the 0-19 service also mentioned that children may have not necessarily stopped gaining weight but they have stopped rising through the centiles so the weight gain is more stable, as they have followed the advice that the healthy lifestyle style team have given.

Behavioural changes seen in quantitative data

The intervention demonstrated positive behavioural changes when comparing pre- and post-intervention results, with improvements noted across multiple dimensions[6] (Chart 2 and Table 2). This assessed through the Lifestyle score , which is generated by SystmOne from the data in the lifestyle questionnaire and summarises all dimensions. The best score possible is 40. For example, if a participant has 3 portions of vegetables a day, this would contribute 3 points out of a possible 5 for that question. An increase in the Lifestyle Score indicates a positive shift toward healthier lifestyle behaviours. Overall, 70% of participants showed improvements in their S1 Score, indicating a general shift towards healthier habits. Dietary improvements were among the most significant, with 66% of participants increasing their intake of fruits and vegetables. In addition, reductions in the consumption of unhealthy snacks were observed, with 46% of participants decreasing their intake of savory snacks and 50% reducing sweet snack consumption. However, challenges persisted in reducing the frequency of takeaways and sugary drink consumption, with only 36% and 40% of participants, respectively, reporting decreases in these areas.

Screen time and physical activity also showed notable changes, with 36% of participants reducing their screen time and 52% increasing their physical activity levels, contributing to a more balanced lifestyle. Confidence in supporting healthier habits showed a 29% improvement, reflecting increased capability among participants to foster a healthier environment for their children. However, only 28.6% of participants reported higher motivation to support these behaviours, suggesting that additional strategies may be needed to encourage sustained commitment.

Sleep habits remained a challenging area, with only 9% reporting positive changes in sleep patterns. Home-cooked meals saw only modest improvement, with just 8% of participants reporting an increase in home cooking. These findings suggest that while the intervention has had a substantial impact on promoting healthier eating habits and reducing certain unhealthy behaviours, additional focus on specific areas, such as motivation, home-cooking practices, and sleep habits, may be needed to achieve sustained behavioural change among participants.

---

[6] Only children who completed the program and had available data both before and after the intervention were included in this analysis. Hence, some children may not be represented in certain questions if they responded to one question but not to others.

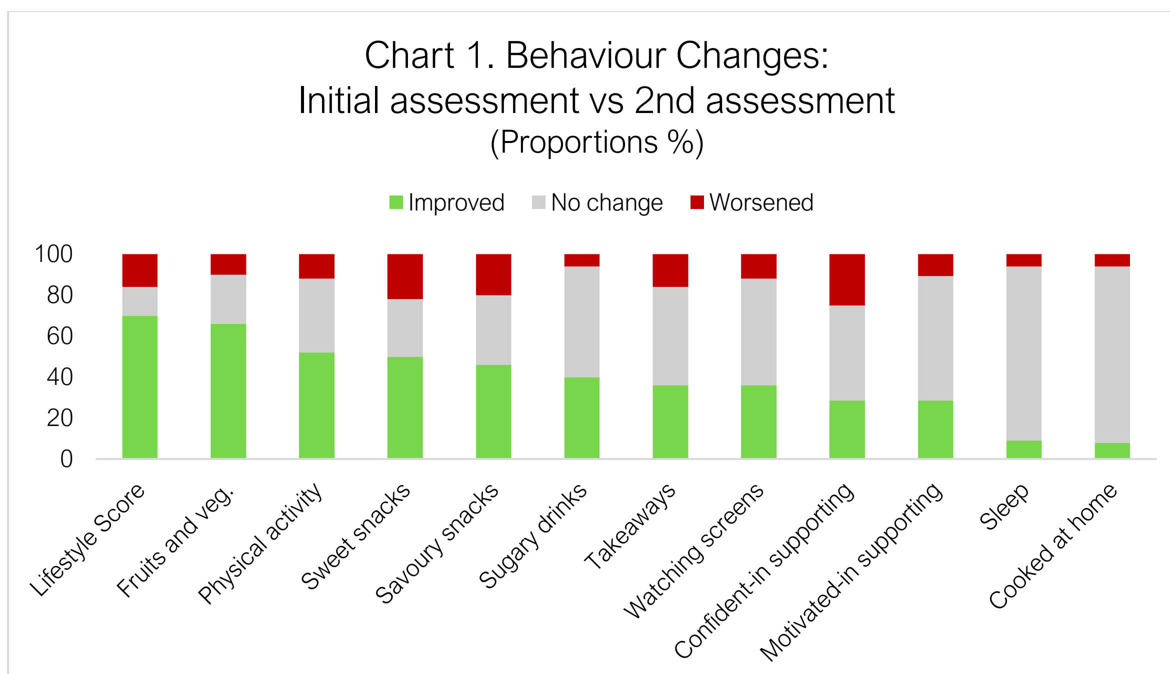


Table 2. Behaviour changes pre- and post-intervention: summary statistics

Assessment Questions	Total				Percentages (%)			
	Worsened	No change	Improved	Total	Worsened	No change	Improved	Total
Lifestyle Score	8	7	35	50	16%	14%	70%	100%
Fruits and veg.	5	12	33	50	10%	24%	66%	100%
Takeaways	8	24	18	50	16%	48%	36%	100%
Savoury snacks	10	17	23	50	20%	34%	46%	100%
Sweet snacks	11	14	25	50	22%	28%	50%	100%
Sugary drinks	3	27	20	50	6%	54%	40%	100%
Cooked at home	3	43	4	50	6%	86%	8%	100%
Physical activity	6	18	26	50	12%	36%	52%	100%
Watching screens	6	26	18	50	12%	52%	36%	100%
Sleep	2	28	3	33	6%	85%	9%	100%
Confident-in supporting	7	13	8	28	25%	46%	29%	100%
Motivated-in supporting	3	17	8	28	10.7%	60.7%	28.6%	100%

What has been the contribution of the initiative/actions taken to the observed outcomes (i.e., gross vs net outcomes)?

The net impact of the intervention can be analysed by comparing initial behaviour with behaviour observed three months after the intervention has concluded, where it is observed that participants have been able to maintain the improvements in behaviours achieved at the end of the intervention. The Lifestyle Score indicates that 78% of participants have maintained or further improved their overall lifestyle score (compared

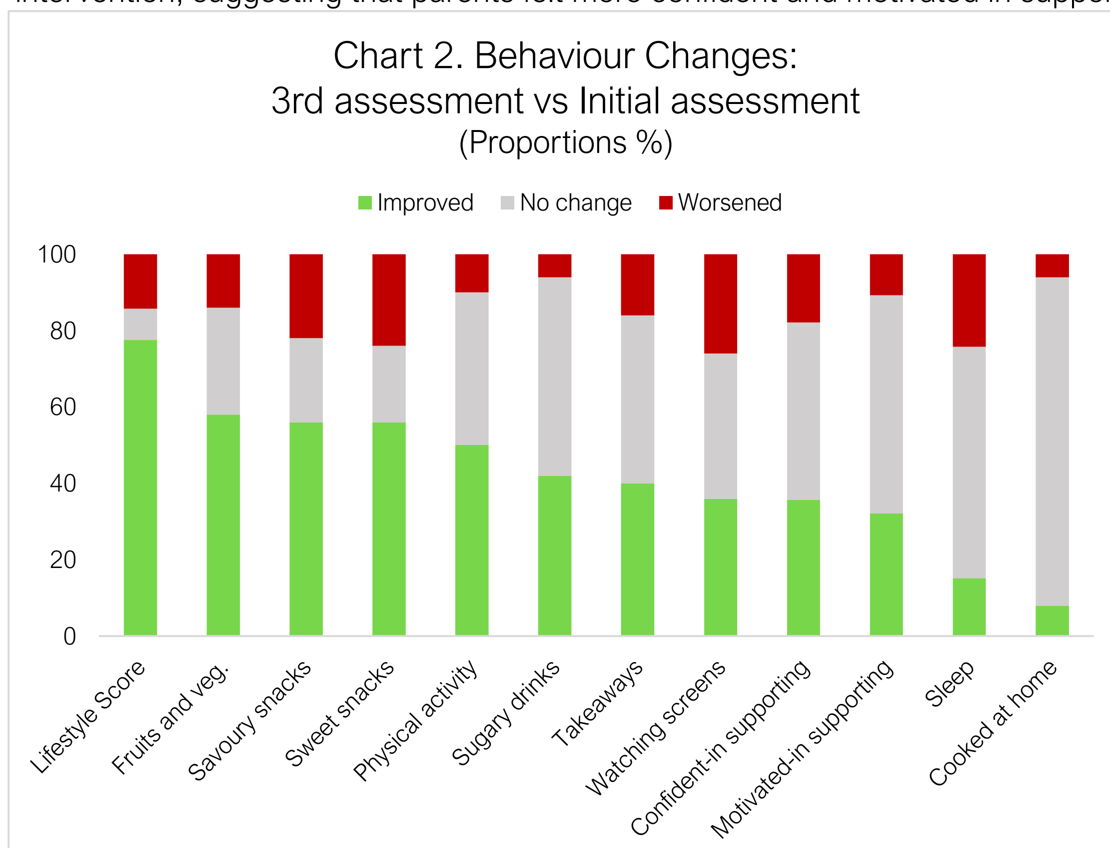
to 70% immediately post-intervention). This highlights the intervention's lasting impact on promoting healthier lifestyle habits.

For fruit and vegetable intake, 58% of participants continued to increase their consumption three months after the intervention, though this is a slight decline from the 66% observed immediately post-intervention. This suggests that while the positive trend remains, some support may be beneficial to sustain this improvement.

In terms of snack consumption, 56% of participants reduced their intake of both savory and sweet snacks, a consistent improvement from the initial post-intervention assessment. However, takeaways saw a smaller reduction, with only 40% reporting a decrease, indicating an area that may need further focus for sustained change. Sugary drinks showed a reduction, with 42% of participants consuming less, which is consistent with the pattern observed immediately after the intervention.

Physical activity increased for 50% of participants. In contrast, screen time remains a challenge, with only 36% reducing their screen time, while 26% increased it, highlighting an area where additional intervention may be needed.

Cooking at home and sleep patterns showed minimal improvements. Only 8% reported cooking more meals at home, and sleep patterns showed limited change, with only 15% reporting improvements. These areas may require more targeted strategies to foster long-term changes.When examining supportive behaviours, 36% of participants felt more confident in supporting healthy lifestyle changes, and 32.1% reported increased motivation. These percentages are higher than those observed immediately post-intervention, suggesting that parents felt more confident and motivated in supporting



their children's healthy habits even after the intervention ended. However, it's worth noting that neither confidence nor motivation exceeded 50%, indicating that while there has been progress, additional support may be needed to strengthen and sustain these supportive behaviours over the long term.

While some behaviours show slight reversals, these changes are minimal. The key takeaway is that, when comparing the initial baseline to three months after the intervention concluded, children have achieved notable improvements in their eating habits and physical activity levels. Many positive changes have been sustained, indicating the intervention's lasting impact.

Table 3. Behaviour changes 3rd assessment vs Initial assessment : summary statistics

Assessment Questions	Total				Percentages (%)			
	Worsened	No change	Improved	Total	Worsened	No change	Improved	Total
Lifestyle Score	7	4	38	49	14%	8%	78%	100%
Fruits and veg.	7	14	29	50	14%	28%	58%	100%
Takeaways	8	22	20	50	16%	44%	40%	100%
Savoury snacks	11	11	28	50	22%	22%	56%	100%
Sweet snacks	12	10	28	50	24%	20%	56%	100%
Sugary drinks	3	26	21	50	6%	52%	42%	100%
Cooked at home	3	43	4	50	6%	86%	8%	100%
Physical activity	5	20	25	50	10%	40%	50%	100%
Watching screens	13	19	18	50	26%	38%	36%	100%
Sleep	8	20	5	33	24%	61%	15%	100%
Confident-in supporting	5	13	10	28	18%	46%	36%	100%
Motivated-in supporting	3	16	9	28	10.7%	57.1%	32.1%	100%

A disaggregated assessment of each behaviour provides further detail on the starting point and magnitude of changes. This disaggregated data explains, for example, the apparent small change in the number of times families eat food that has been freshly cooked at home, chart 18 indicates that before the intervention, 88% of families reported eating freshly cooked meals at least 4 times per week. This increased to 90% post-intervention and remained at 90% in the three-month follow-up. While the change appears small, the high starting point suggests families were already cooking frequently at home.

However, the high proportion of families reporting that they ate freshly cooked food at home at the beginning of the program may have been due to a lack of understanding about what constitutes healthy eating. For example, some families may have considered frozen meals to be part of their freshly prepared food, suggesting that the results in this area may understate the program's impact.

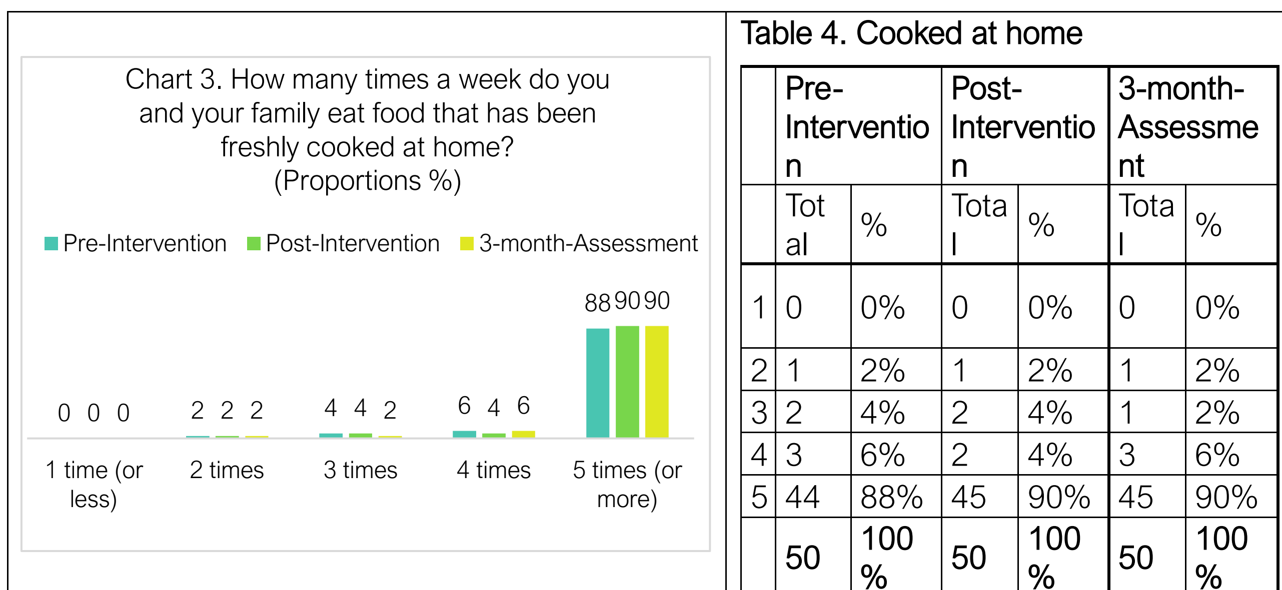


Table 4. Cooked at home

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
1	0	0%	0	0%	0	0%
2	1	2%	1	2%	1	2%
3	2	4%	2	4%	1	2%
4	3	6%	2	4%	3	6%
5	44	88%	45	90%	45	90%
	50	100%	50	100%	50	100%

There has been a notable reduction in takeaway meal consumption. Pre-intervention, 46% of families reported consuming takeaways only once a month or less, which increased to 58% post-intervention and further to 66% in the three-month follow-up. This gradual increase suggests that the program's impact has been sustained and even strengthened over time. However, it's worth noting that external factors, such as changes in the job patterns or income of the main cook, may also play a role in this reduction.

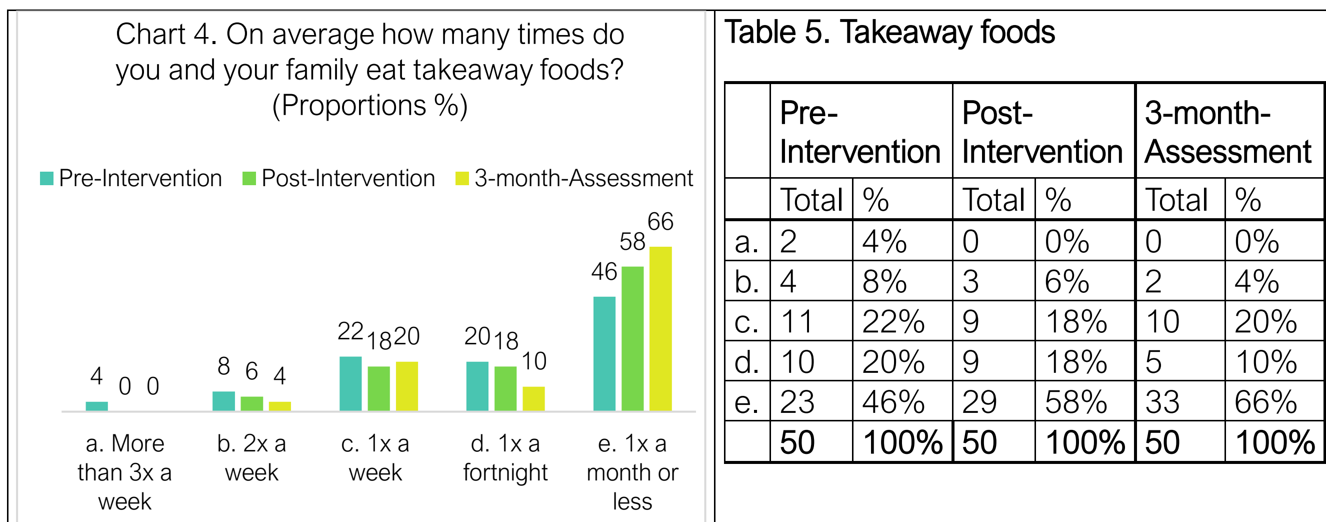


Table 5. Takeaway foods

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
a.	2	4%	0	0%	0	0%
b.	4	8%	3	6%	2	4%
c.	11	22%	9	18%	10	20%
d.	10	20%	9	18%	5	10%
e.	23	46%	29	58%	33	66%
	50	100%	50	100%	50	100%

The most significant change observed is the increased consumption of fruits and vegetables. Pre-intervention, only 18% of families consumed five portions daily, which rose to 42% post-intervention and further to 44% in the three-month follow-up. Additionally, those consuming just one portion dropped from 22% pre-intervention to 2% post-intervention, with a slight increase to 4% in the follow-up. These results indicate a substantial improvement in dietary habits, likely driven by the program's focus on healthy eating.

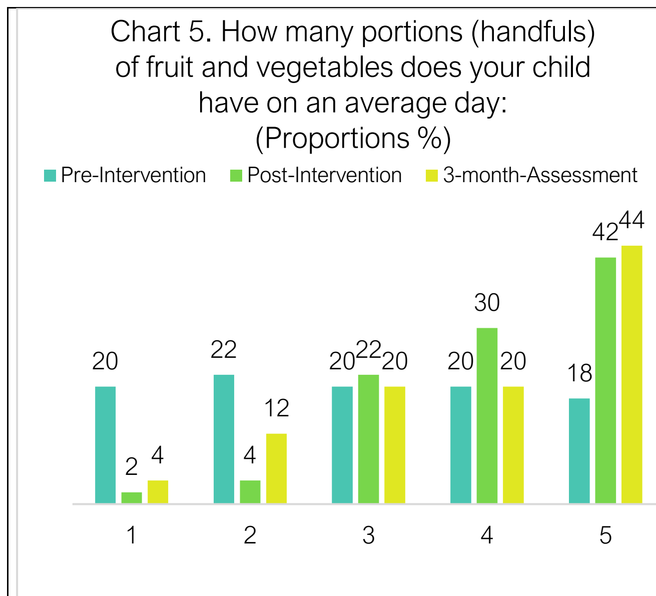


Table 6. Fruit and vegetables

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
1	10	20%	1	2%	2	4%
2	11	22%	2	4%	6	12%
3	10	20%	11	22%	10	20%
4	10	20%	15	30%	10	20%
5	9	18%	21	42%	22	44%
	50	100%	50	100%	50	100%

Behaviour changes also highlight important reductions in the consumption of snacks (sweet and savoury) and sugary drinks. Sweet snacks were remarkably popular before the intervention, much more so than savoury snacks and sugary drinks: before the intervention, around 42% children ate sweet snacks 2x a day or more or most days, compared to 36% for savoury snacks and 23% for sugary drinks. After the intervention, consumption patterns show a shift towards healthier behaviours: the proportion of those eating sweet snacks 2x a day or more or most days was reduced to 21%, savoury snacks to 17% and sugary drinks to 5%.

Among these changes, the reduction in sugary drink consumption stands out as particularly significant. Before the intervention, 61% of children reported never consuming sugary drinks. After the intervention, this figure increased substantially to 86%, representing a 25-point increase. This shift indicates that the intervention successfully encouraged some children who previously consumed sugary drinks to eliminate them from their diet altogether. Such a marked change highlights the program's effectiveness in promoting healthier beverage choices.

The intervention led to significant reductions in snack and sugary drink consumption, with the most substantial change observed in sugary drink intake. Before the intervention, the 54% of children reported never consuming sugary drinks, which rose dramatically to 76% post-intervention and remained steady at 76% three months later. This shift highlights the intervention's effectiveness in reducing sugary drink consumption among children, encouraging healthier beverage choices.

Similarly, sweet and savory snack consumption also showed positive declines. Pre-intervention, 18% of children consumed sweet snacks twice a day or more, which decreased to 6% immediately after the intervention and dropped to 0% by the three-month follow-up. For savory snacks, those consuming them frequently fell from 12% pre-intervention to 0% post-intervention, with this reduction sustained over time. These results illustrate the intervention's success in promoting healthier eating and drinking habits, with reductions maintained three months after the programme ended.

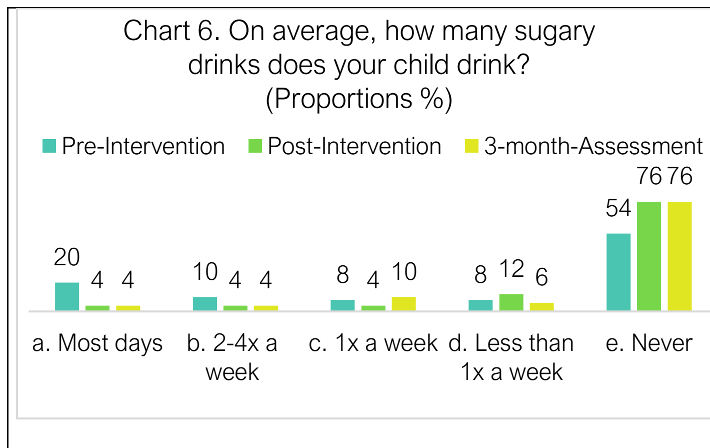


Table 7. Sugary drinks

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
a.	10	20%	2	4%	2	4%
b.	5	10%	2	4%	2	4%
c.	4	8%	2	4%	5	10%
d.	4	8%	6	12%	3	6%
e.	27	54%	38	76%	38	76%
	50	100%	50	100%	50	100%

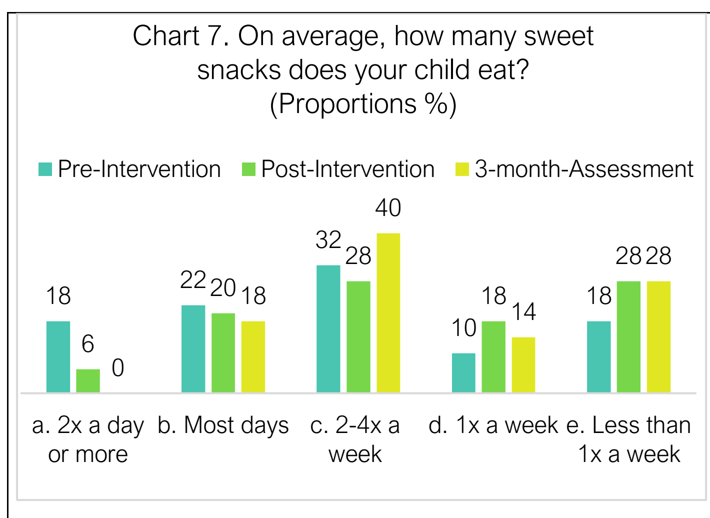


Table 8. Sweet snacks

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
a.	9	18%	3	6%	0	0%
b.	11	22%	10	20%	9	18%
c.	16	32%	14	28%	20	40%
d.	5	10%	9	18%	7	14%
e.	9	18%	14	28%	14	28%
	50	100%	50	100%	50	100%

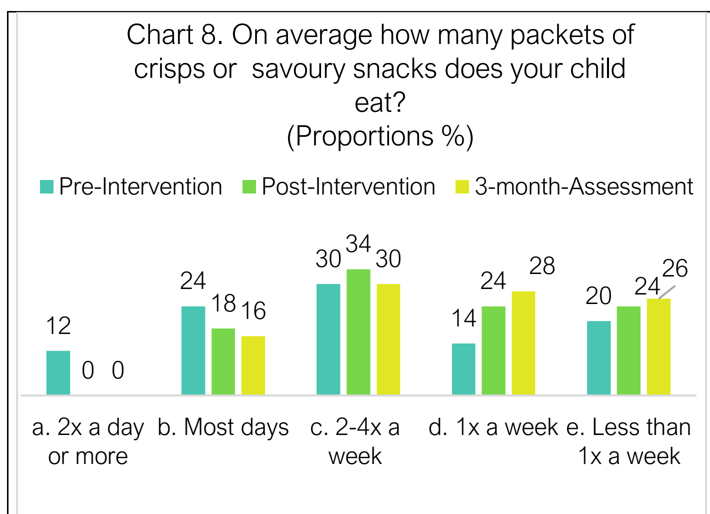


Table 9. Savoury snacks

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
a.	6	12%	0	0%	0	0%
b.	12	24%	9	18%	8	16%
c.	15	30%	17	34%	15	30%
d.	7	14%	12	24%	14	28%
e.	10	20%	12	24%	13	26%
	50	100%	50	100%	50	100%

Physical activity showed the most significant improvement among the activities assessed. Before the intervention, only 42% of children engaged in more than three hours of physical activity per week. This rose sharply to 70% post-intervention and further to 72% at the three-month follow-up, marking a substantial increase in active time. Additionally, the proportion of children engaging in less than one hour of physical activity per week dropped from 20% pre-intervention to just 4% post-intervention, with

this reduction maintained at 4% in the follow-up. This highlight the intervention's effectiveness in promoting higher levels of physical activity, with improvements sustained well beyond the programme's conclusion.

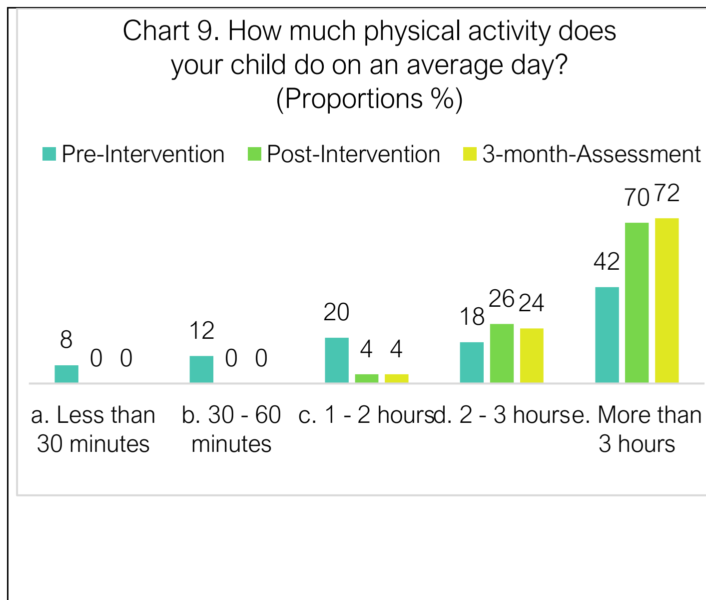


Table 10. Physical activity

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
a.	4	8%	0	0%	0	0%
b.	6	12%	0	0%	0	0%
c.	10	20%	2	4%	2	4%
d.	9	18%	13	26%	12	24%
e.	21	42%	35	70%	36	72%
	50	100%	50	100%	50	100%

The analysis indicates a positive reduction in children's screen time. Before the intervention, 20% of children spent over three hours per day on screens, which decreased to 14% post-intervention but returned to 20% in the three-month follow-up. However, children limiting their screen time to healthier levels showed promising improvements: those spending 30 to 60 minutes increased from 14% pre-intervention to 28% post-intervention and slightly rose to 30% in the follow-up.
These results suggest that while some gains in reducing prolonged screen time were maintained, the programme successfully promoted healthier viewing habits for many, supporting a reduction in sedentary behaviour among participants.

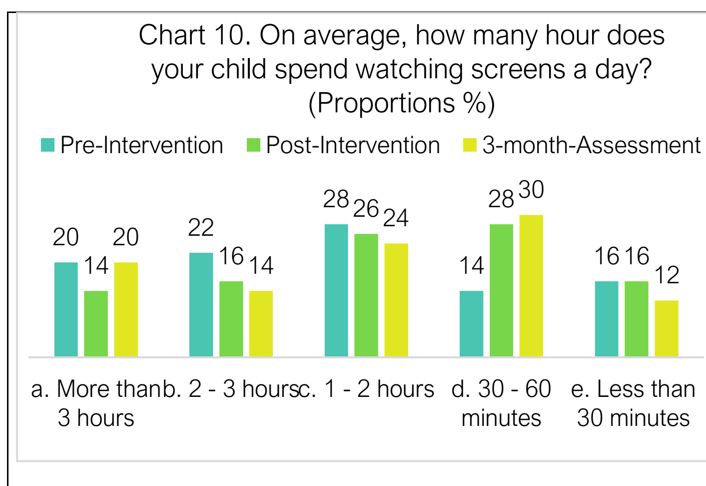


Table 11. Watching screens

	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
a.	10	20%	7	14%	10	20%
b.	11	22%	8	16%	7	14%
c.	14	28%	13	26%	12	24%
d.	7	14%	14	28%	15	30%
e.	8	16%	8	16%	6	12%
	50	100%	50	100%	50	100%

There was a modest improvement in children's sleep duration following the intervention. Pre-intervention, 52% of children were sleeping more than 12 hours a day, which increased slightly to 55% post-intervention but decreased to 45% in the three-month

follow-up. Additionally, the proportion of children sleeping between 11 and 12 hours rose slightly from 36% pre-intervention to 33% post-intervention and returned to 36% in the follow-up.

Which indicates that while some positive changes in sleep duration were observed immediately post-intervention, maintaining these improvements may require additional support over time.

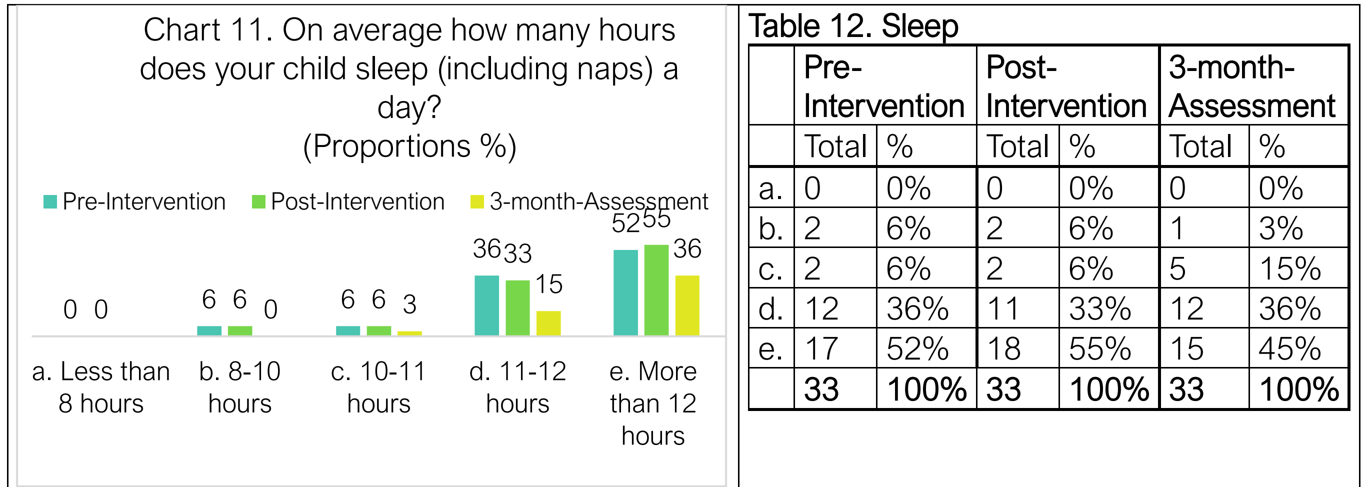
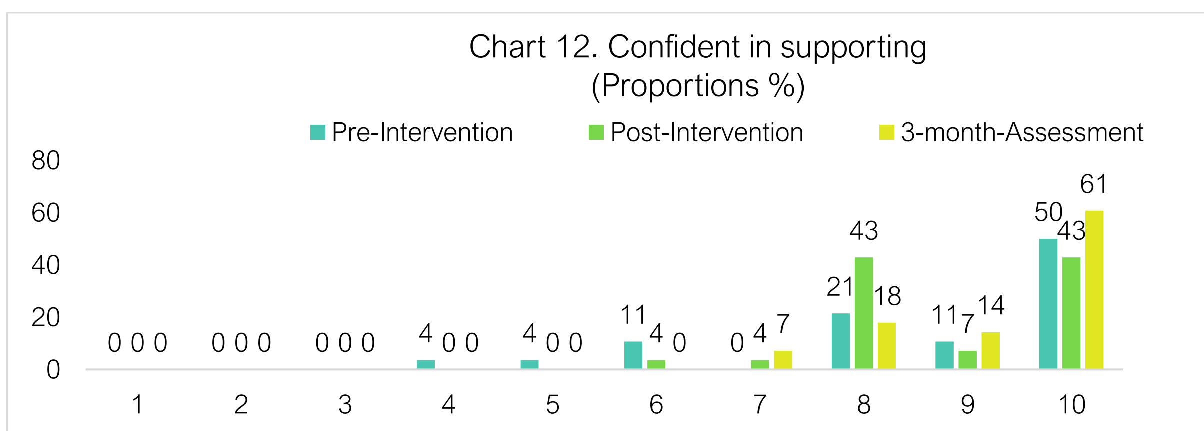


Table 12. Sleep

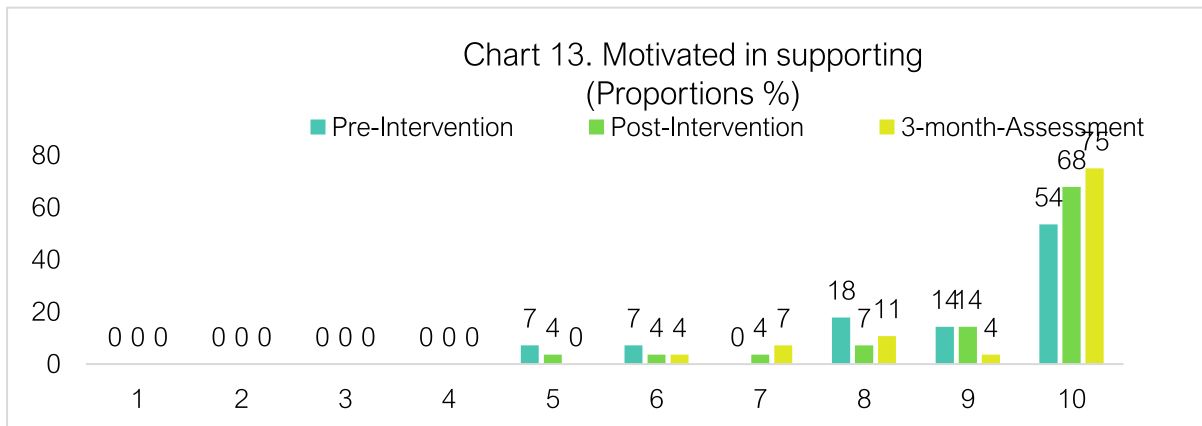
	Pre-Intervention		Post-Intervention		3-month-Assessment	
	Total	%	Total	%	Total	%
a.	0	0%	0	0%	0	0%
b.	2	6%	2	6%	1	3%
c.	2	6%	2	6%	5	15%
d.	12	36%	11	33%	12	36%
e.	17	52%	18	55%	15	45%
	33	100%	33	100%	33	100%

The intervention appears to have had a significant impact on increasing parents' confidence in supporting their child's healthy lifestyle, particularly in the higher confidence range (scores 8-10). Pre-intervention, 61% of parents rated their confidence within this range. This rose substantially to 90% post-intervention and further to 93% in the three-month follow-up, indicating a strong and sustained increase in high confidence levels over time. Showing a sustained improvement in parents' confidence over time, with a significant shift toward higher confidence levels (scores 8-10) that was maintained even three months after the intervention.



The intervention had a significant impact on increasing parents' motivation to support their child's healthy lifestyle, particularly in the higher motivation range (scores 8-10). Pre-intervention, 86% of parents rated their motivation within this range. This increased to 89% immediately after the intervention and further to 90% in the three-month follow-up, demonstrating a strong and sustained rise in high motivation levels. This trend

underscores the intervention's effectiveness in fostering a supportive environment for children's healthy lifestyle habits.



Analysis of BMI Z Score

Children (2 to 4 years of age) who completed the intervention had a pre-BMI Z score similar to those who dropped out (2.8 vs. 2.9). Although the difference is minimal, it suggests that BMI Z score was not a major factor influencing completion rates. An analysis by gender is limited due to the small sample size, especially among those who did not complete the programme. However, there is evidence that both female and male participants experienced a significant reduction in their BMI Z scores following the intervention.

Boys started with an average pre-BMI Z score of 3.0, which decreased to 2.2 after the programme, indicating a substantial improvement. Similarly, girls began with a pre-BMI Z score of 2.8, which was reduced to 2.3 by the end of the intervention. These results demonstrate that both boys and girls benefited from the programme, achieving healthier BMI levels, with boys showing a slightly greater reduction.

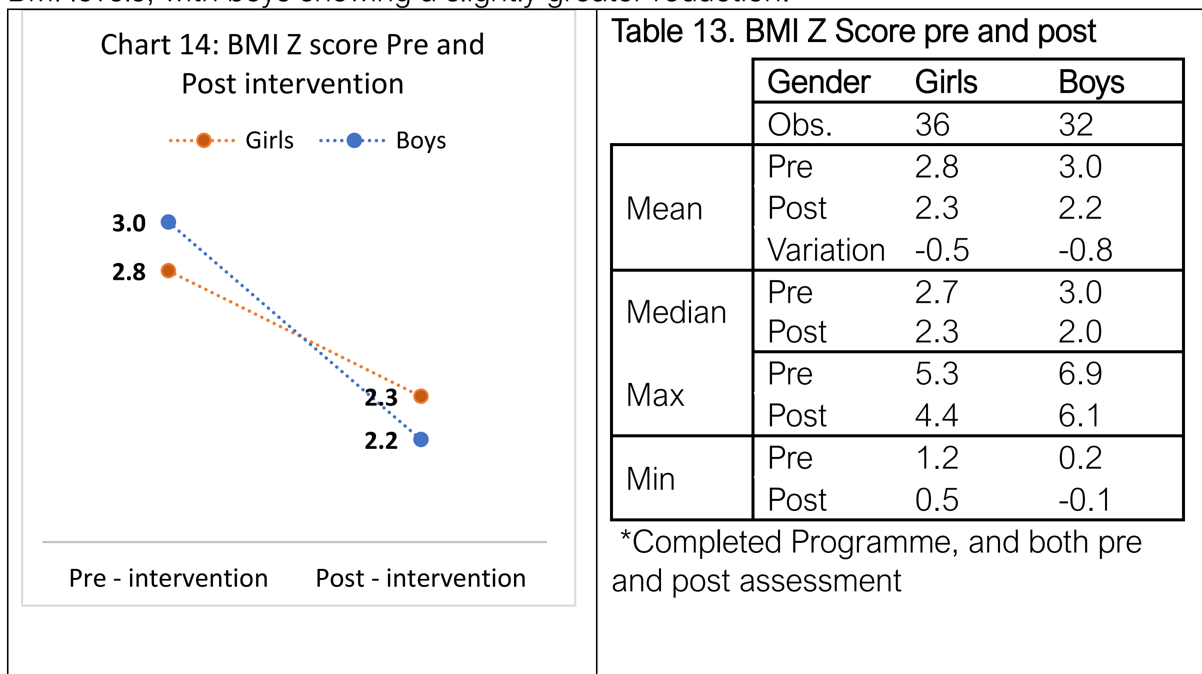


Table 13. BMI Z Score pre and post

	Gender	Girls	Boys
	Obs.	36	32
Mean	Pre	2.8	3.0
	Post	2.3	2.2
	Variation	-0.5	-0.8
Median	Pre	2.7	3.0
	Post	2.3	2.0
Max	Pre	5.3	6.9
	Post	4.4	6.1
Min	Pre	1.2	0.2
	Post	0.5	-0.1

*Completed Programme, and both pre and post assessment

Have outcomes been stronger for particular beneficiaries, activities or situations and why?

Programme effects by sociodemographic groups

The number of participants in the three-month evaluation is approximately 50 children/families. Due to this relatively small sample size, the analysis by different categories may be limited, as some categories could have very few observations. It is worth noting that, although only around 50 participants in the three-month evaluation were also part of the post-evaluation, the total number of participants in the post-evaluation is around 115. The difference is that not all these participants were included in the three-month evaluation.

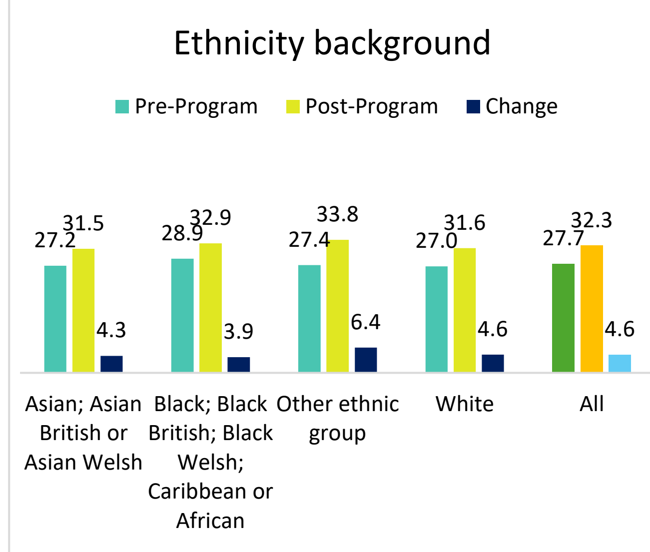
Importantly, the patterns observed in the post-evaluation for the total sample of 115 are similar to those for the subset of 50 participants who were also part of the three-month evaluation. Consequently, this analysis will use the complete data from the post-evaluation. There are two reasons for this approach: first, using the post-evaluation allows for a larger number of observations, which improves the ability to analyse different categories in more detail; second, the focus of this section is on differences between groups.

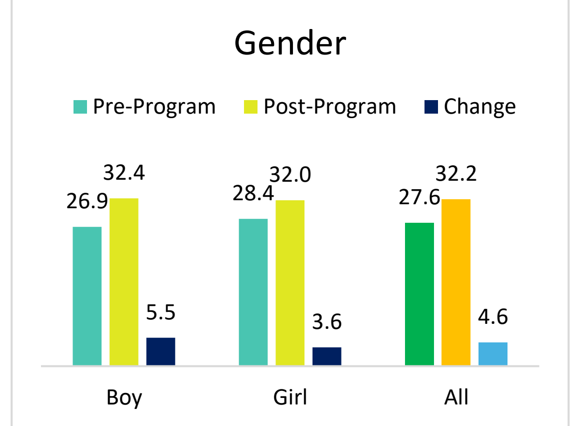
Lifestyle score mean differences between groups

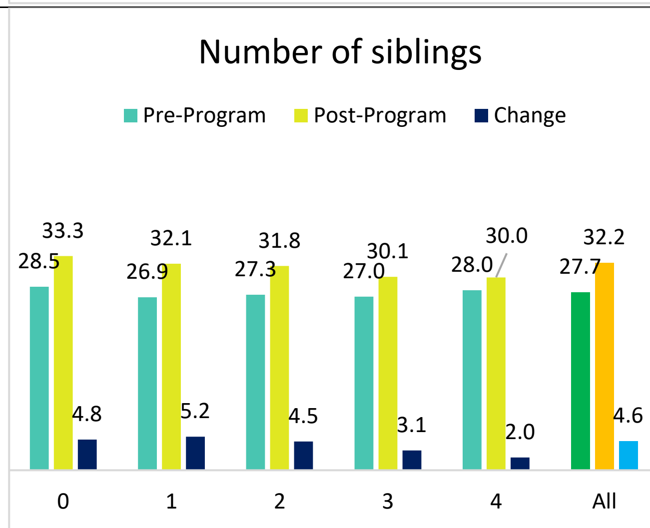
Overall, the differences between groups are relatively small, with the programme consistently increasing lifestyle scores across the board. Interestingly, the groups that initially lagged behind appear to show the most improvement. The charts in this section provide an overview of the differences across groups. While some differences are observed, they are not particularly striking. However, some patterns emerge. For example, children who have a higher baseline lifestyle score tend to be from the Black ethnic group, are more often girls, have no siblings, require an interpreter, and are younger.

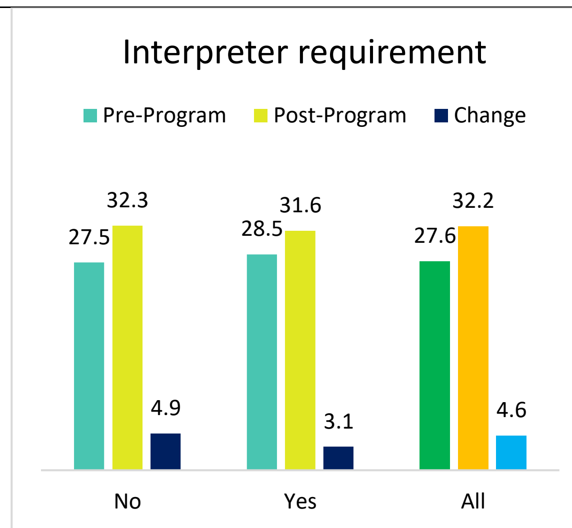
It is important to note a caveat: many questions in the scale are not continuous, are not equally spaced, and the aggregation may vary depending on the specific questions included. Therefore, these results should be considered as indicative of trends rather than definitive effects. In addition, this analysis does not imply causality and is conditional on only one variable. For example, 38% of girls are from the Black ethnic group, compared to 22% of boys, making it challenging to isolate a single reason for these differences.

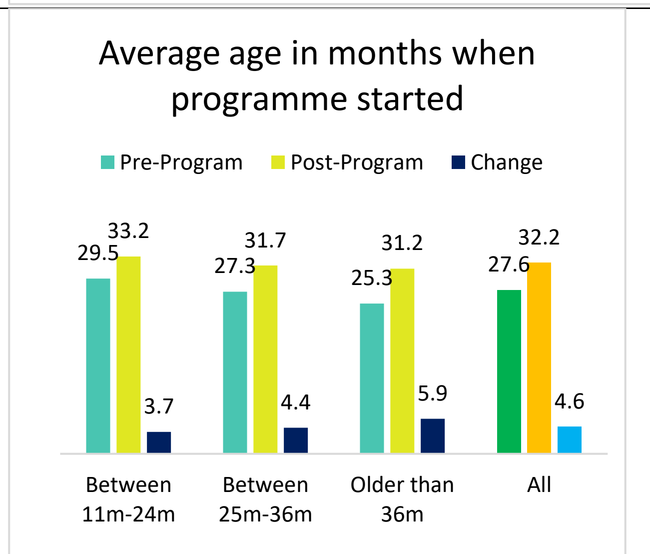
Chart 15: Lifestyle Score by categories











Although the analysis could examine each question individually, the overall pattern is similar across them. For illustrative purposes, the focus will be on the first question, which addresses the number of portions (handfuls) of fruits and vegetables a child consumes on an average day. This question is one of the few with equally spaced response options, which may help in assessing consistency and to improve understanding of how responses vary across questions. Additionally, this single question serves as a useful example, as repeating this process for all 11 questions would become overly repetitive.

The analysis of average portions of fruits and vegetables reveals small differences between groups, with a pattern indicating that **groups that initially lagged behind appear to show the most improvement**. Particularly, children from Other ethnic groups, boys, children with at least one sibling and children older than 36 months.

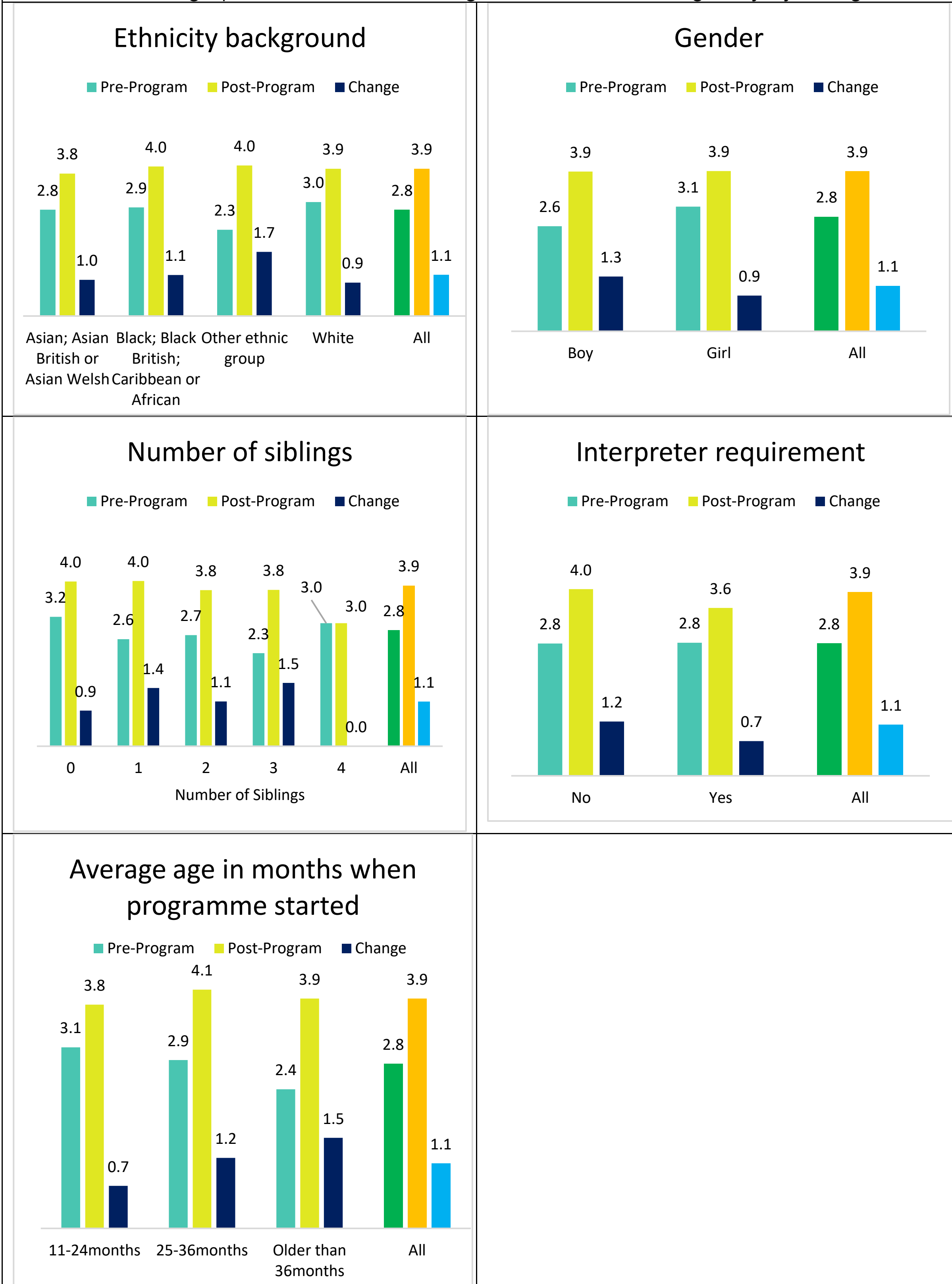
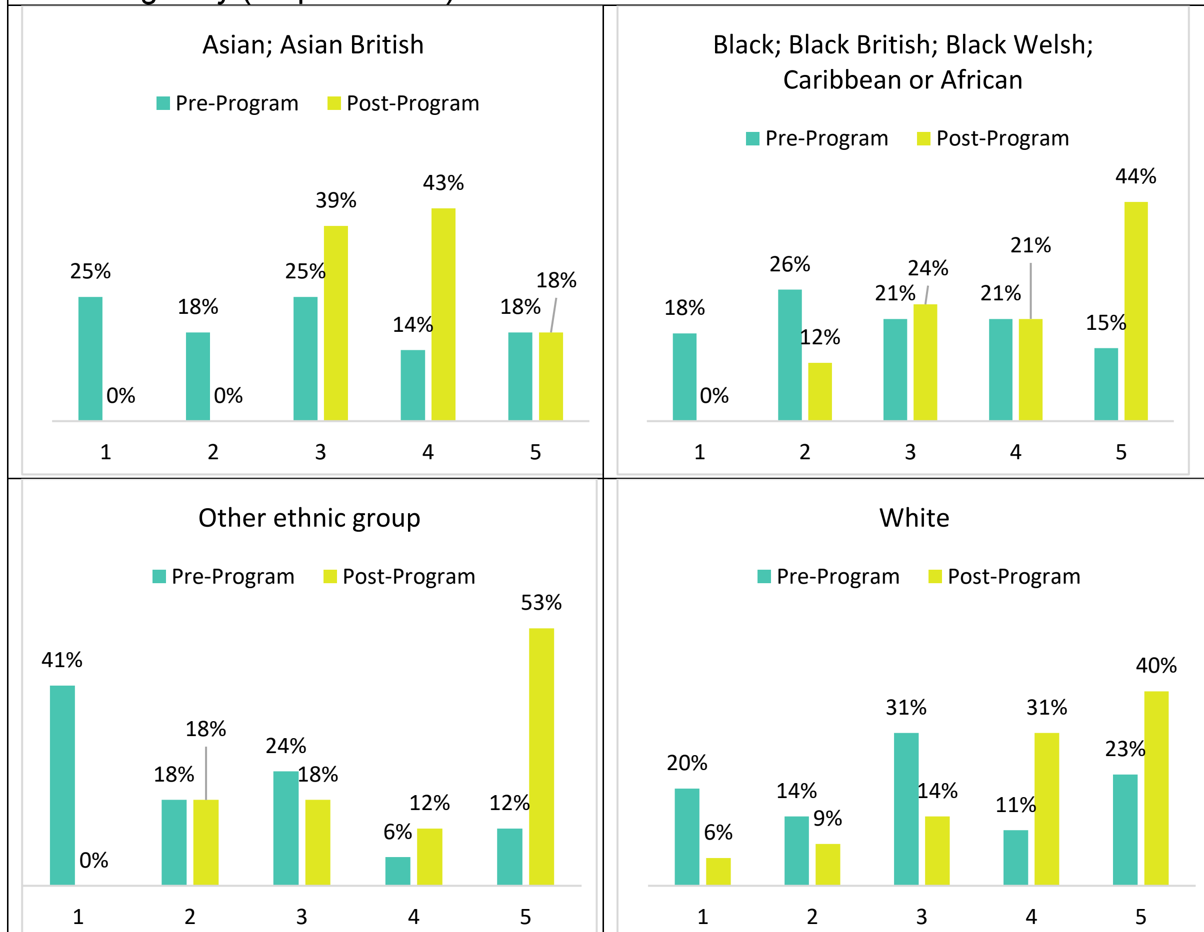


Chart 16: Average portions of fruit and vegetables on an average day by categories
Ethnicity background
Pre-Program
Post-Program
Change
2.8
3.8
1.0
2.9
4.0
1.1
2.3
4.0
1.7
3.0
3.9
0.9
2.8
3.9
1.1
Asian; Asian British or Asian Welsh
Black; Black British; Caribbean or African
Other ethnic group
White
All
Gender
Pre-Program
Post-Program
Change
2.6
3.9
1.3
3.1
3.9
0.9
2.8
3.9
1.1
Boy
Girl
All
Number of siblings
Pre-Program
Post-Program
Change
3.2
4.0
0.9
2.6
4.0
1.4
2.7
3.8
1.1
2.3
3.8
1.5
3.0
3.0
0.0
2.8
3.9
1.1
0
1
2
3
4
All
Number of Siblings
Interpreter requirement
Pre-Program
Post-Program
Change
2.8
4.0
1.2
2.8
3.6
0.7
2.8
3.9
1.1
No
Yes
All
Average age in months when programme started
Pre-Program
Post-Program
Change
3.1
3.8
0.7
2.9
4.1
1.2
2.4
3.9
1.5
2.8
3.9
1.1
11-24months
25-36months
Older than 36months
All

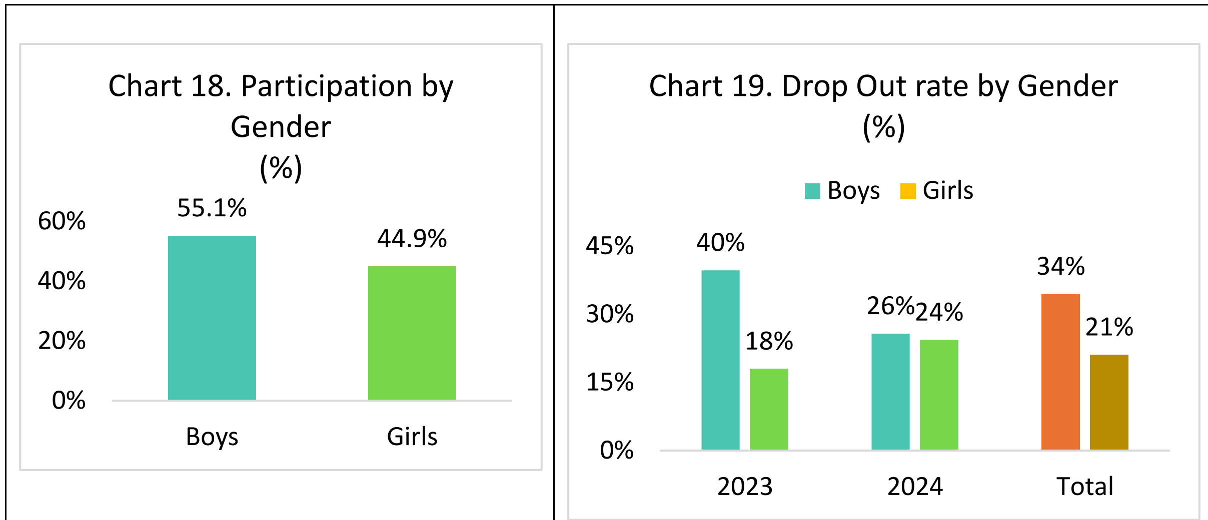
An alternative to analysing the mean is to examine the frequency of each specific response. For instance, before to the programme, a significant number of children across all ethnic groups were consuming fewer than the recommended portions of fruits and vegetables per day. After participating in the programme, however, every group reported an increase in average daily fruit and vegetable intake. The analysis shows consistent improvements across all groups, with each group's average consumption rising from 3 to 4 portions per day.

Chart 17: Average portions (handfuls) of fruit and vegetables that the child have on an average day (Proportions %)

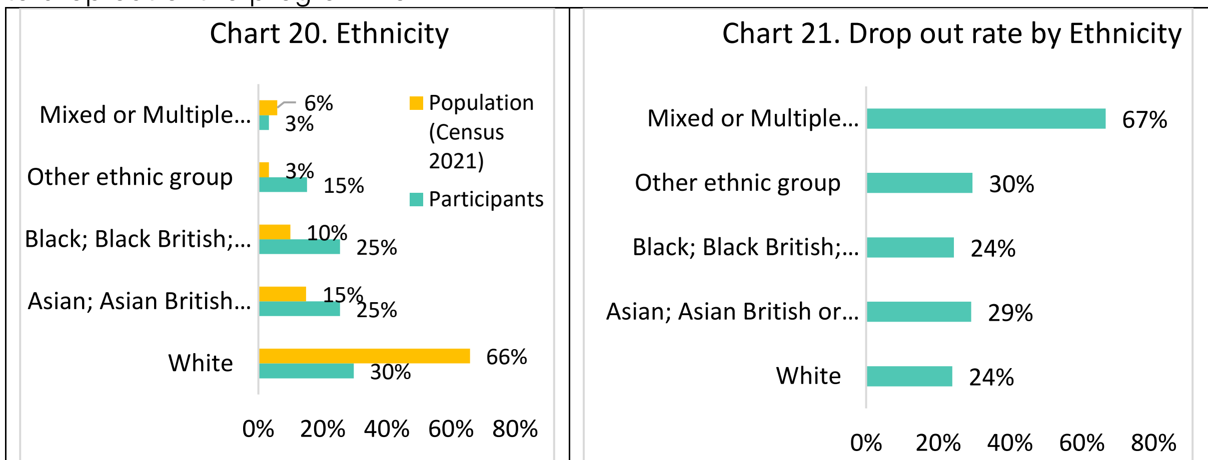


The analysis explored the characteristics of participants and the factors associated with non-completion, focusing on children aged 9 months and 4 years. Sociodemographic factors of the family appear to be likely contributors to programme completion rates. Therefore, variables such as number of siblings, ethnicity, and other relevant factors will be assessed.

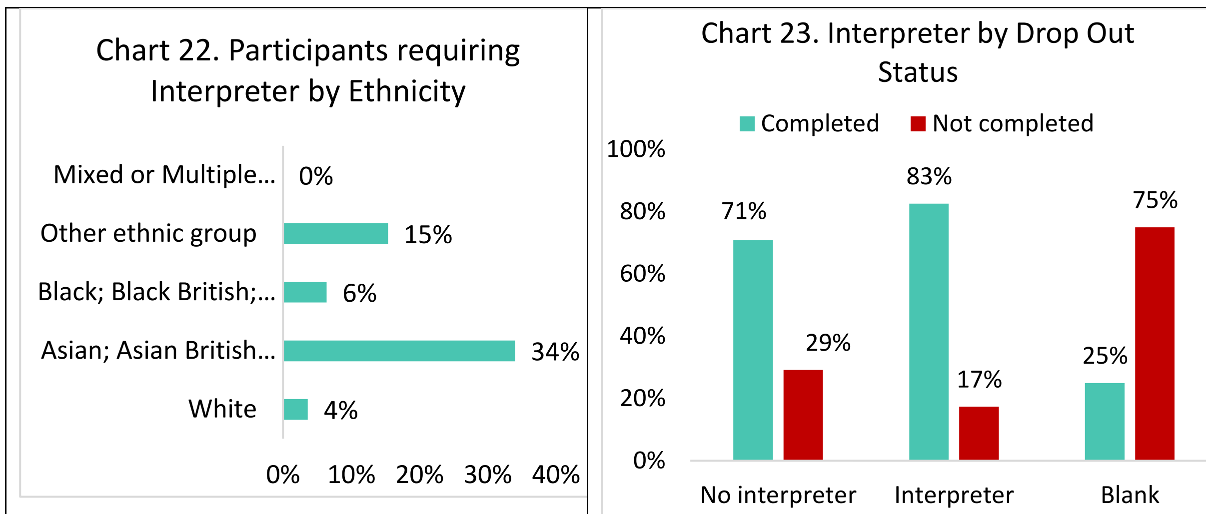
Most participants are boys, and they also show a higher dropout rate compared to girls. Of the 185 participants aged 9 months to 4 years, boys make up 55.1% (102 in total), while girls represent 44.9% (83 in total). Additionally, boys have a higher risk of leaving the programme, with a 34% dropout rate. The majority of this dropout occurred in 2023, with no similar trend observed in 2024, suggesting this may not be a systematic pattern. Nevertheless, close monitoring should continue to ensure that an increase in non-completion is detected promptly.



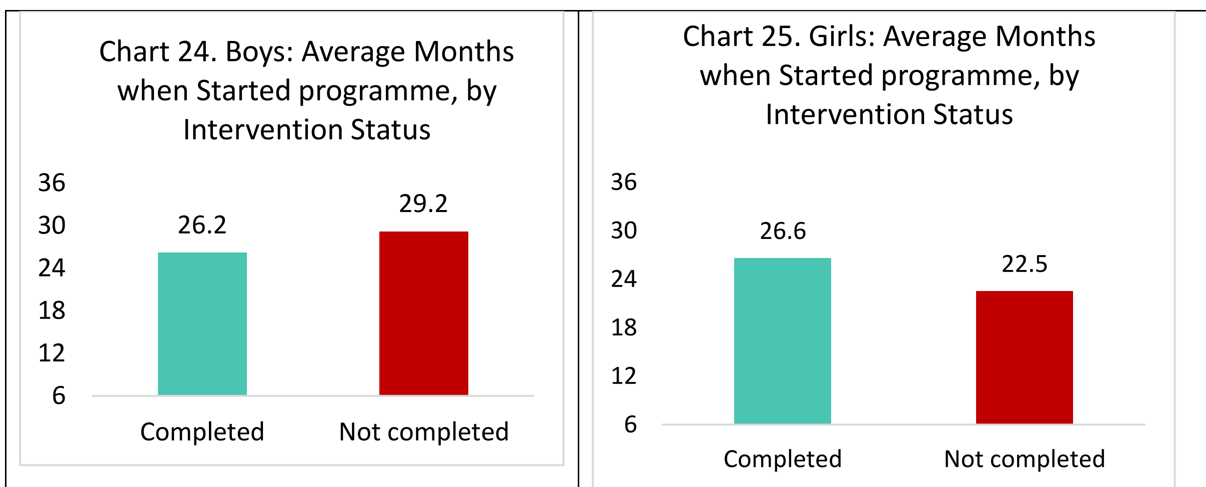
The participants reflect a more diverse demographic than the general population of the area. This discrepancy may suggest that minority groups are either more impacted by the lack of a healthy lifestyle or more inclined to seek support. Further analysis with a broader population is recommended to clarify these patterns. The overall dropout rates do not appear to be linked to any specific ethnic minority group, Mixed or multiple ethnic minority groups make up only 3% of the sample, however, these groups are more likely to drop out of the programme.



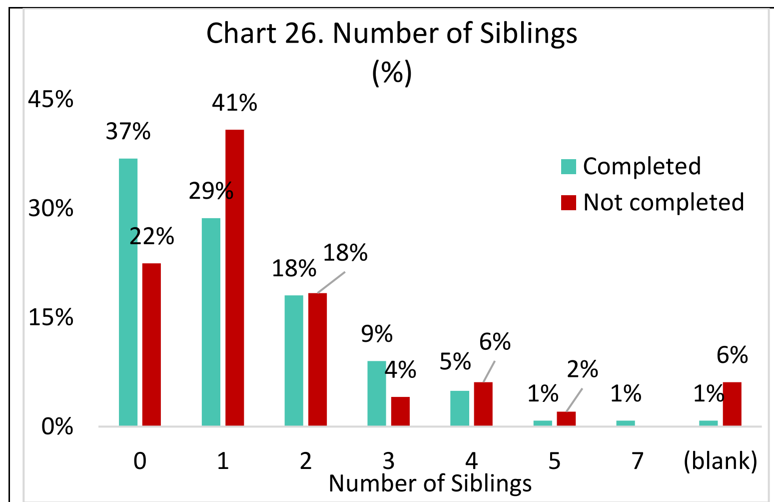
The availability of an interpreter supports a significant number of families and may help prevent dropout rates from increasing. This finding suggests that interpreter availability facilitates programme access for a significant segment of the population. Interestingly, participants who required an interpreter were not more likely to drop out—in fact, they tended to remain engaged. While a cautious approach is necessary due to some missing data on interpreter needs, dropout rates remain similar between those with and without interpreter support, even if the missing responses were from participants who required an interpreter.



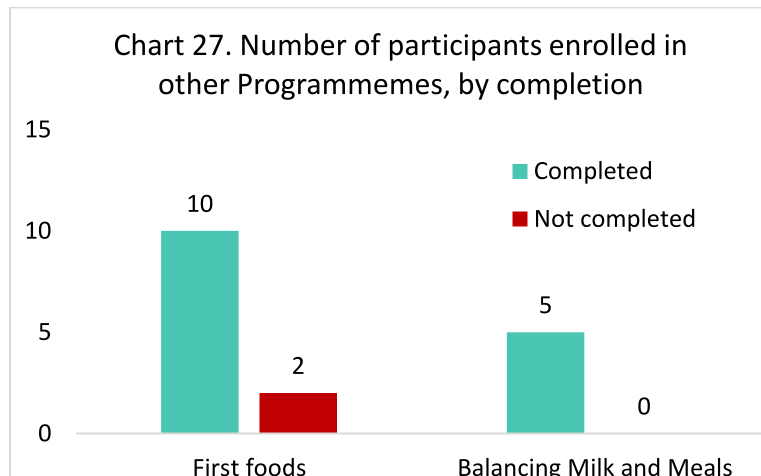
There is no clear association between average age in months and dropout rate, as the pattern varies between boys and girls. For boys, those who did not complete the programme tend to be older, while for girls, the opposite is true: those who did not complete the programme are younger.



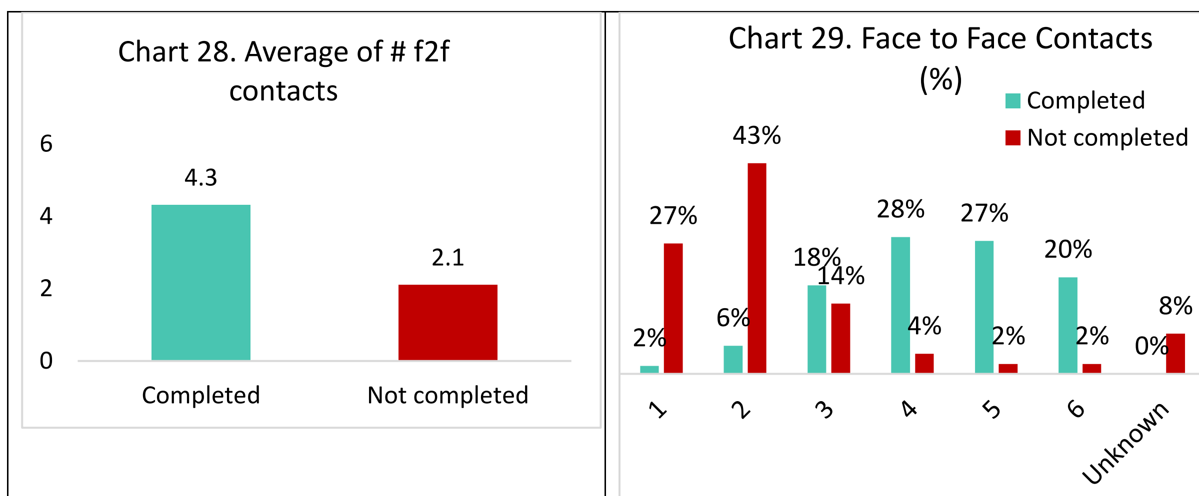
The number of siblings a child has seems to influence their chances of completing the programme: children without siblings are more likely to complete the programme compared to those with one sibling. Although the average number of siblings among completers and non-completers is similar (2.3 vs. 2.1), there is a considerable variation within each group. Figure X illustrates these differences, and qualitative responses indicate that the presence of siblings may play a role, either facilitating or hindering families' ability to maintain programme-driven changes.



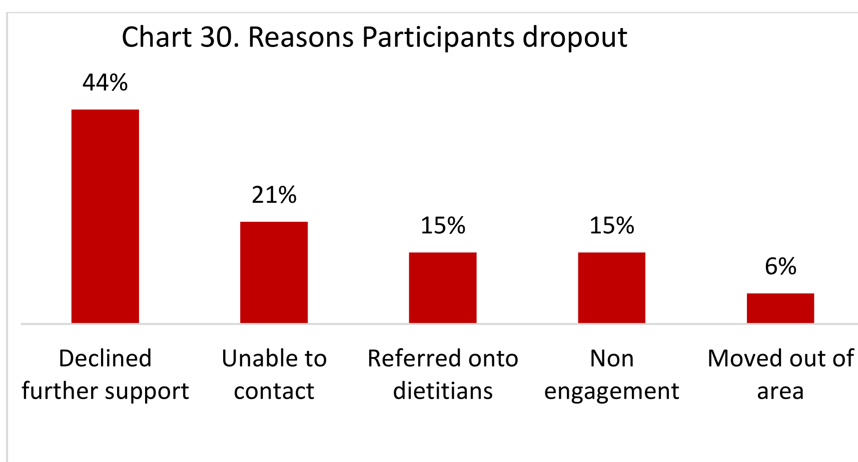
Families and children who completed previous programmes are more likely to complete the Healthy Lifestyles Programme. For example, of the 12 families who participated in the First foods programme, 10 went on to complete the Healthy Lifestyle programme (83%), and all 5 families from the Balancing Milk and Meals programme completed it as well. This suggests that targeting families with a history of programme participation may help reduce dropout rates. However, it is important to note that the sample size is relatively small.



The average number of sessions for children who completed the programme is 4.3. It is worth considering that even children who dropped out attended an average of 2.1 sessions, suggesting that the sessions may have had some effect on them. As a result, even if families do not complete the programme, it would be worthwhile to assess the impact of their partial exposure to it.



The main reasons for dropping out are that a family member declined further support or was unable to be contacted. Approximately 67% of the dropout rate can be attributed to these reasons. A significant portion of children (14.6%, or 7 children) did not complete the programme because they were referred to dietitians. Additionally, in one response related to declining further support, more details were specified: due to work commitments. Similarly, in one response for being unable to be contacted, it was specified: “Unable to contact mother”.



Most of the children participating in the programme are from deprived areas. The dataset provided information about the Indices of Multiple Deprivation (IMD). The Index of Multiple Deprivation ranks every small area in England from 1 (most deprived area) to 32,844 (least deprived area). This is an index based on seven different “domains, or facets” of deprivation. Hence, the postcodes can be used to identify the information for each different domain. Deciles are calculated by ranking the 32,844 small areas in England, from most deprived to least deprived, and dividing them into 10 equal groups. Using the postcode, it is possible to use the complete public dataset provided by the UK government. This data indicates that most of the children participating in the programme are from deprived areas.

This is according to expectations, as the programme was initially commissioned within the 4 SSBC wards with high levels of deprivation.

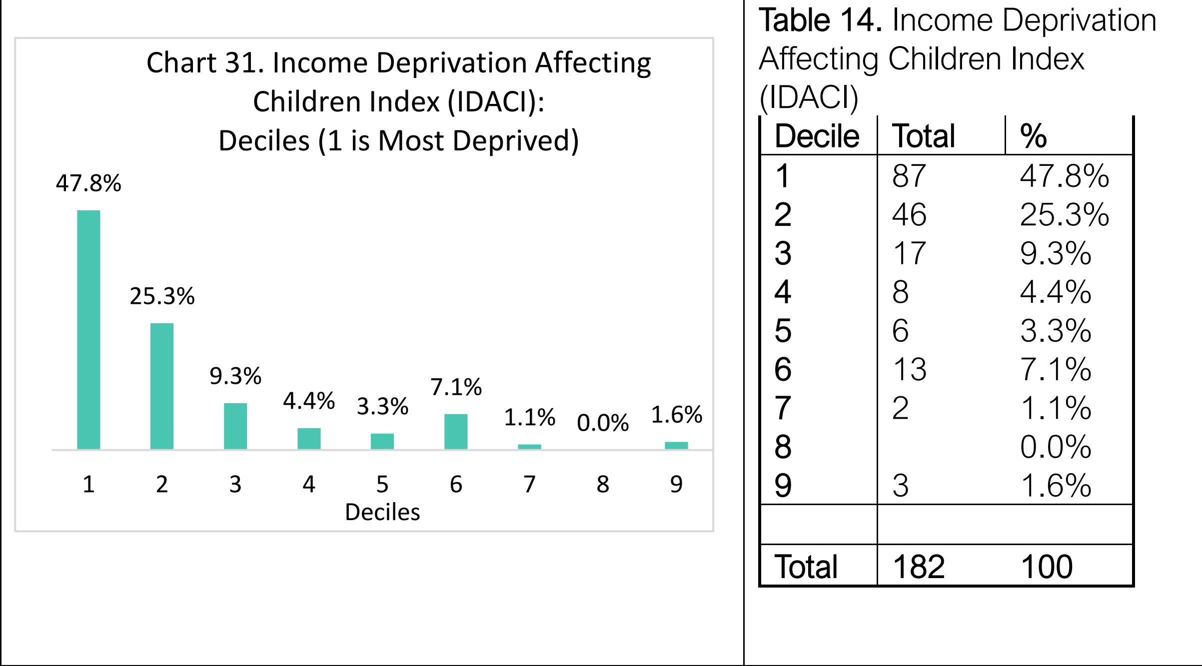
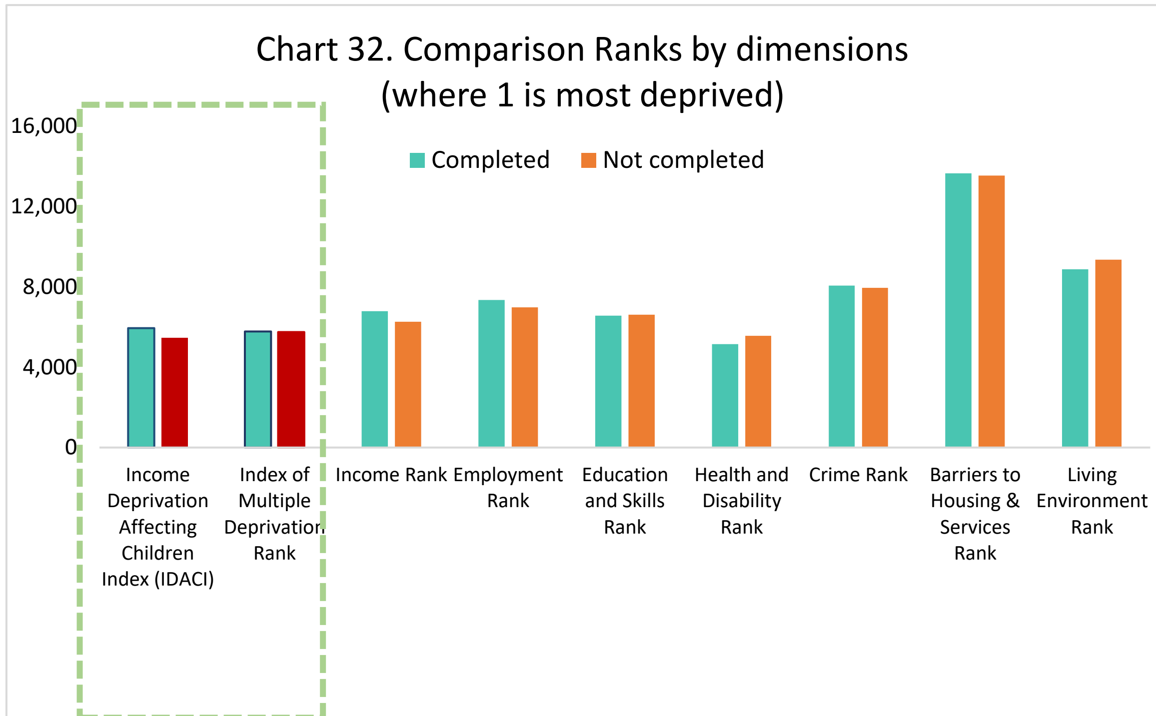


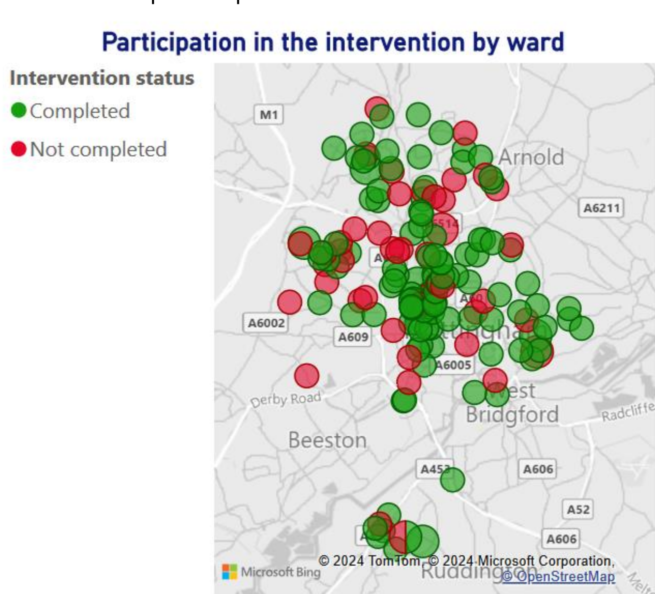
Table 14. Income Deprivation Affecting Children Index (IDACI)

Decile	Total	%
1	87	47.8%
2	46	25.3%
3	17	9.3%
4	8	4.4%
5	6	3.3%
6	13	7.1%
7	2	1.1%
8		0.0%
9	3	1.6%
Total	182	100

Children who completed the programme were more likely to live in less deprived areas than those who did not, according to the Income Deprivation Affecting Children index (see chart below), as the mean rank was slightly higher for children who completed the programme. Specifically, in terms of Income and Employment, these children that completed the programme seemed to be living in less deprived areas than those who did not complete the intervention. The differences may not be large enough to conclude that these factors played an important role in the decision to remain in or drop out of the programme. However, this highlights the relevance of gathering additional and precise information for each family, as the index of deprivation only allows for the assessment of average indicators for specific areas, and individual characteristics may be obscured by inequality.



The geographical distribution of participants may help to identify the effects of clusters to reinforce participation.



Findings: Economic evaluation

Centre for Mental Health (CfMH) conducted a cost-benefit analysis to compare the costs and the benefits of the Healthy Lifestyles Pathways programme to determine whether the service provides value for money. To do this the long-term reduced service usage cost to the NHS were monetised and compared with the services operating costs (staff salaries). The health benefits of the service were not monetised due to a lack of estimates for Disability-Adjusted Life Years (DALYs) and disability weights. DALYs are a measure of overall disease burden, expressed as the number of years of healthy life lost due to ill health, disability, or early death. In this context, a DALY would represent the impact of obesity-related diseases on a person's quality of life, considering both life expectancy and life quality.

Economic benefits: Reduced service usage
Economic benefits in this context include the positive long-term outcomes associated with the Healthy Lifestyles Pathway service, such as reduced service usage. These benefits contribute to a holistic assessment on the service's economic impact and its value to the community. The economic benefits stemming from reduced usage of critical services such as the NHS are multifaceted. Service usage decrease translates into a lower strain on public resources, allowing for a more efficient allocation of both funds and labour force. The financial burden associated with obesity on the NHS is alleviated, potentially resulting in substantial cost savings for both government and individuals.

Rapid weight gain (RWG)
Rapid weight gain in childhood can predispose a person to obesity and comorbid diseases such as type 2 diabetes and cardiovascular disease (Arisaka et al., 2020). A total of 26 children, aged under 2 years, had improved RWG following intervention from Healthy Lifestyles Pathways. The common types of cardiovascular disease are coronary heart disease, which can lead to heart attacks, angina and heart failure, and strokes (NHS, 2022). The average costs of first events (first cardiovascular related hospitalisations) and long-term (subsequent 30 months) costs per person per year in the UK are presented in table 15.

Table 15: Cost per person per year of first cardiovascular related hospitalisations and Long-term cardiovascular related hospitalisations

Cardiovascular disease	Estimated cost in 2016		Inflation adjusted (2023)	
	First event hospitalisations	Long-term hospitalisations	First event	Long-term
Heart attack/Myocardial infarction	£4,275	£922	£5,614.51	£1,210.90
Ischaemic stroke	£3,512	£973	£4,612.43	£1,277.88
Heart failure	£2444	£848	£3,209.79	£1,113.71
Unstable angina	£2179	£328	£2,861.76	£430.77
Total	-	-	**£16,298.49**	**£4,033.26**

Note: 2016 figures taken from Danese et al. (2016) and were adjusted for inflation in 2023 using the inflation calculator (Bank of England, n.d.).

The total cost of cardiovascular risk events in 2023 was £16,298.49 per person per year and the total long-term costs were £4,033.26 per person per year. In addition, in 2019, the average cost of admissions for type 2 diabetes in the UK was £595 per person per year (Stedman et al., 2020), which would have cost £729.55 per person per year in 2023 when adjusted with inflation (Bank of England, n.d.).

Research has suggested that children who gain weight rapidly before the ages of 5 years are considered at high risk of developing cardiovascular disease later in life (Lowe, 2016). The improvements observed in RWG for the 26 children, aged under 2 years, who took part in the Healthy Lifestyles Pathways programme may have reduced their risk of developing cardiovascular disease and type 2 diabetes and potentially saved the NHS a future cost of up to £549,231.80 (up to £20,606.30 in savings for type 2 diabetes, up to £423,760.74 in savings for first cardiovascular events, and up to £104,864.76 in savings for long-term cardiovascular events). We cannot assume that all 26 of these children would develop cardiovascular diseases or type 2 diabetes in later life, therefore the suggested NHS cost savings are presented as the maximum value saved and likely to be an overestimate.

Body Mass Index (BMI) z-scores

Broccoli et al. (2020) suggested in their research that there is an increased risk of childhood obesity when BMI z-scores increase between birth to the age of 3 years. Childhood obesity can lead to an increased risk of developing type 2 diabetes, cardiovascular disease, high cholesterol and blood pressure, joint pain, breathing problems, and non-alcoholic fatty liver disease (NAFLD) in later life (Mayo Clinic, 2022). Common breathing problems associated with obesity are asthma and pulmonary embolisms (Shah et al., 2023). Around 20% of NAFLD diagnoses lead on to non-alcoholic steatohepatitis (NASH) (Kawanaka et al., 2020).

Table 16: Cost per person per year for obesity-associated diseases

Obesity-related disease	Cost per person per year	Cost per person per year (2023)
Type 2 diabetes	£595 (2019)	£729.55
First cardiovascular related hospitalisations	£7,787 (2016)	£16,298.49
Long-term cardiovascular related hospitalisations	£2,098 (2016)	£4,033.26
Breathing problems: Asthma	£690 (2016)	£906.20
Breathing problems: Pulmonary embolus	£1,090 (2016)	£1,431.54
Non-alcoholic steatohepatitis (NASH)	£803 - £828 (2018) Average = £816	£1,018.44

Note: NASH figures are from Morgan et al. (2021), breathing problems figures are from The Guardian (n.d.), cardiovascular figures are from Danese et al. (2016), and type 2 diabetes figures are from Stedman et al. (2020). Figures were adjusted for inflation in 2023 using the inflation calculator (Bank of England, n.d.).
The z-scores of 28 children aged between 2-4 years decreased from pre-intervention (average z-score = 3.09) to 3 months follow-up (average z-score = 2.20). This z-score reduction may have decreased the risk of these children experiencing childhood-obesity related diseases in later life and potentially saves the NHS £661,283.76 (£20,427.40 in savings for type 2 diabetes, £456,357.72 in savings for first cardiovascular related hospitalisations, £112,931.28 in savings for long-term cardiovascular related hospitalisations, £25,373.60 in savings for obesity-related asthma, £40,083.12 in savings for pulmonary embolisms, and £6,110.64 in savings for NASH).

Lifestyle Scores
A total of 14 children aged between 9 months and 2 years, and 37 children aged between 2-4 years had increased lifestyle scores from pre-intervention to 3 months follow-up. The 9 months to 2 years group demonstrated a 13% increase with average scores increasing from 30 pre-intervention to 34 at 3 months follow-up. The 2-4 years age group saw a 41% increase in S1 scores with average scores increasing from 22 pre-intervention to 31 at 3 months follow-up. Children aged less than 9 months did not have lifestyle scores. As mentioned earlier in the report, lifestyle indicates an overall improvement in healthy lifestyles and a decreased risk of obesity and obesity-related diseases.

To avoid double counting only children with an improved Lifestyle score were included (see table 17).

Table 17: Economic analysis structure.

	9 months to 2 years		2-4 years			
Group	RWG improved + S1 score improved	Lifestyle score improved only	BMI z-score decreased and S1 score improved	BMI z-score decreased only	Lifestyle score improved	Unknown
Number of children	24	8	27	1	10	2
Preventative impacts	- Type 2 diabetes - First cardiovascular related hospitalisations - Long-term cardiovascular	- Type 2 diabetes - First cardiovascular related hospitalisations - Long-term cardiovascular related hospitalisations - Breathing problems: Asthma - Breathing problems: Pulmonary embolus - Non-alcoholic steatohepatitis (NASH)				-

	related hospitalisations					
Analysed	RWG analysis	Lifestyle score analysis	BMI z-score analysis	BMI z-score analysis	Lifestyle score analysis	-

A total of 18 children had improved lifestyle scores from pre-intervention stage to the three-month follow-up stage. We calculated the cost savings associated with the decreased risk of obesity and related diseases (see table 16) in later life for the 18 children and estimated a potential saving of £424,849.10 for the NHS.

Economic costs

Table 18: Healthy Lifestyles Pathways annual staff

Staff
Clinical Service Manager
Public Health Nutrition Lead
Community Public Health Nurse
Public Health Practitioner
Children and Young People Support Worker
Administrator

Note: Healthy Lifestyles Pathways uses NHS agenda for change 2024 pay rates (NHS, 2024)

The maximum operating costs for Healthy Lifestyles Pathways using the maximum salary of each band were calculated. The total, maximum annual salary operating costs for the Healthy Lifestyles Pathways programme was £236,294.56. As Healthy Lifestyles pathways do not pay for their office space, salaries were the only costs calculated.

Cost-Benefit analysis

Weighing up the costs (£236,294.56) and benefits (£1,635,364.66) quantified for the present evaluation, Healthy Lifestyle Pathways service provides value for money. Importantly, there may be operating costs that were not flagged and quantified for this analysis, and there are likely more benefits of healthy lifestyles that could be monetised as savings. Particularly, we were unable to monetise the health benefits of the service due to a lack of estimates for Disability-Adjusted Life Years (DALYs) and disability weights. Taking this into consideration, the service exhibits a return of investment of £6.92 for each £1. However, the programme is valuable and has both direct and indirect benefits to service users. Future research might aim to explore the impacts on families further and the associated economic savings.

The team at Healthy Lifestyles Pathways expressed that they are not working at full capacity due to issues around how healthcare professionals frame their conversations at signposting. Parents can misunderstand the aims of the service and not want to engage. This means that the Healthy Lifestyles Pathways programme could be helping more families than it currently is and potentially reducing demand and saving money on the NHS. However, a benefit of this is that they have more time to spend with families and work to personalise the support they provide.

Conclusions

The HLP service meets an important public health need, and its design aligns with good practice explored from the literature reviewed, including national guidance.

What is being delivered, and how?

1:1 Sessions for Families: Most families received tailored 1:1 sessions, appreciating the relevance of practical advice, such as reading food labels and reducing sugar intake. The "sugar session" was particularly impactful for service users, with all interviewees reporting gains from their interactions with the service.
Training: The health visiting team and the 0-19 service staff had a positive experience with the HLP training, feeling confident in their competency to hold meaningful conversations with families. However, the HLP leads identified areas for improvement, particularly around developing more effective communication skills and improving awareness of the service's scope, as HLP is not a weight management service. This misperception was also reflected in some parent interviews, where families were uncertain about the purpose of the referral or what to expect from HLP.
Resources: Both the referral professionals and service users provided positive feedback on resources introduced by HLP, especially the BMI calculator wheels and resource packs, which supported family conversations.

How well have the programme's activities and outputs supported the achievement of overall objectives?

Service users valued the personalised 1:1 sessions, which were reinforced with resources and referrals to other services, enabling them to build self-efficacy and explore healthier behaviours. Parents appreciated the opportunity to ask questions and receive support in areas such as healthy parenting. First-time parents, in particular, found the support invaluable. Some parents expressed interest in additional service options, including group sessions and resources for older (4+years) children.

How has co-production shaped the service, and what has been the benefit?

The HLP service was developed based on evidence from studies, pilot programmes, cultural food surveys, and feedback from staff and service users. While the HLP staff reported mostly positive feedback, it was unclear how this feedback has influenced the service, such as through the use of the three-month follow-up evaluation. The primary co-production mechanism has been the customisation of the programme for each family, which service users praised as they were able to address specific questions and receive support relevant to their unique circumstances.

How does the delivered intervention produce change?
The HLP service employed a range of strategies enabling families to explore and adopt lifestyle changes:

- Increased capacity among the health visiting team and the 0-19 service staff to address families' nutritional and support needs
- Good communication practices and collaborative support with referral partners (e.g., health visitors)
- Flexibility in service delivery, allowing families to engage at their convenience
- Friendly, non-judgemental, and capable staff delivering the service, which encouraged family participation.

What has helped and hindered the wider workforce in understanding the potential benefits of early intervention?
Pre-existing and newly acquired competencies among referral partners enabled them to discuss referrals with confidence. Effective communication and coordination practices allowed professionals to stay updated on families' interactions with the service. Recording interactions in SystmOne was positively received.
Challenges: Some referral partners mistakenly viewed HLP as a weight management service rather than a nutrition and parenting service, which may have confused service users and limited referrals. Furthermore, some professionals were hesitant to identify children at risk of obesity, possibly perceiving this as an additional responsibility.

How has this understanding helped support families both in existing roles and in recognising the need for specialist support?
Developing an understanding of early intervention's potential and applying it to meaningful referral conversations remains challenging, particularly outside the Children's 0-19 service, which has the highest referral rate. Some professionals struggled to fully explain the HLP offer, creating initial anxiety among service users. However, users reported feeling reassured once in contact with the HLP staff.
Recommendation: HLP should strengthen links with referral partners to foster relationships that will drive referrals. While HLP excels in making outward referrals, there is a need to increase inward referrals.

What has helped or hindered parents in recognising a need and reaching out for help?
Parents faced various challenges in implementing recommended changes:

- Low income, limiting access to healthy foods, physical activity options, and time for food preparation.
- Fuel poverty, restricting opportunities for cooking
- Limited access to quality playgrounds and diverse, healthy foods in deprived areas.
- Cultural misunderstandings regarding nutrition from both parents and professionals e.g. differing understanding of what brown rice is[7].
- Limited knowledge of healthy practices.
- Perceived lack of education for new parents on weaning, sleep, physical activity, and child development.

---

[7] In some cultures, *brown rice* might be fried rice.

- Language barriers for non-English-speaking parents, making food labels and health information harder to understand.

Parents appreciated the non-judgemental and holistic support offered, feeling able to ask any question without fear.

How does the context affect implementation and outcomes?

While service users were highly satisfied with HLP and valued the practical support offered, they noted specific family conditions that serve as barriers to healthier lifestyle choices. These included poor housing, limited cooking facilities, lack of outdoor play spaces, parental work patterns, family health issues, mental health and well-being, immigration status, and access to social support. Additionally, parents emphasised the relative cost of food, with first-time parents finding fresh food cheaper and parents with older children finding it more expensive.

To what extent has the specialist service integrated into the local system and added value?

The HLP service operates below its referral capacity, but both service users and referral partners see a gap in services of this type. Without HLP, core services would lack the capacity and expertise to provide specialised support or to refer families to additional resources, such as English classes or health services for children.

Service users appreciated the 1:1 approach, complemented by group sessions, with many preferring the privacy and convenience of individual sessions. Parents noted that group settings may be less accommodating, while 1:1 sessions felt supportive, relaxed, and judgement-free.

How well has the service achieved behaviour change for families identified as at risk of being overweight or obese?

The HLP team noted improvements in family eating habits, particularly portion control, fruit and vegetable intake, sugar reduction, and label-reading skills. Service users reported benefits across the family, with some sharing positive changes in other family members' health and habits, including reduced BMI and improved dietary choices.

What has been the contribution of the initiative/actions to the observed outcomes (i.e., gross vs net outcomes)?

The service has fostered sustained changes, such as increased physical activity and healthier diets, while encouraging families to explore new recipes and reduce sugar intake. Parents appreciated the opportunity to set goals and receive follow-up support, which helped maintain these changes. The HLP approach provides a tailored response that general services or internet resources would not be able to match, offering parents specialised support not readily available elsewhere.

The final assessment data suggest a positive and sustainable impact on key behaviour changes among participants. Significant improvements were observed in the overall Lifestyle Score, physical activity levels, and reductions in the intake of savoury snacks and sugary drinks, highlighting the effectiveness of the service in promoting healthier behaviours.

The intervention demonstrates a substantial and sustained impact on promoting healthier lifestyle habits among children and their families across multiple dimensions. A detailed analysis of dietary habits shows that families improved their eating behaviours, with increased consumption of fruits and vegetables, reduction in takeaway meals, and significant decreases in snack and sugary drink consumption. For instance, the proportion of children who eliminated sugary drinks from their diets increased from 54% pre-intervention to 76% post-intervention, highlighting the programme's success in encouraging healthier beverage choices.

Physical activity saw the most pronounced improvement, with a marked increase in the number of children engaging in more than three hours of activity per week, rising from 42% pre-intervention to 72% three months after the intervention ended. This sustained increase underscores the programme's effectiveness in fostering more active lifestyles. Similarly, screen time showed positive changes, with more children reducing their daily screen use immediately following the intervention, although some of these gains diminished slightly by the three-month follow-up.

Sleep duration and consistency in home-cooked meals reflected smaller, but still positive, changes. The high baseline for families already preparing home-cooked meals frequently limited observable gains in this area, though the intervention may have refined families' understanding of healthy cooking. While sleep improvements were modest and showed some decline in the follow-up, these results suggest areas where additional support could reinforce lasting change.

Parental involvement and support were also notably enhanced by the intervention. Confidence in supporting their child's healthy lifestyle increased, with 93% of parents reporting high confidence levels three months post-intervention, up from 61% pre-intervention. Motivation to support these healthy habits also remained high, reaching 90% in the follow-up period. These findings indicate that the programme successfully fostered a supportive environment that not only encouraged behavioural changes in children but also empowered parents to actively sustain these changes over time.

Have outcomes been stronger for particular beneficiaries, activities, or situations, and why?

The service appears to have had improvements reported across all intended dimensions. Overall, 72% of participants showed improvements in their Lifestyle Score, reflecting a general adoption of healthier habits. Among the specific dimensions assessed, dietary improvements were particularly significant. The most significant change is the increased consumption of fruits and vegetables.

The data from the semi structured interviews indicates that outcomes were particularly beneficial for first-time parents who received tailored support in navigating the challenges of caring for a newborn. The service helped parents develop self-efficacy through practical information and goal-setting, empowering them to make informed choices.

The analysis of BMI Z scores showed that both boys and girls experienced reductions following the intervention, reflecting that change in reported behaviours were

corresponded to an impact. Boys' average BMI Z score decreased from 3.0 to 2.2, while girls' scores reduced from 2.8 to 2.3. These findings suggest that the intervention was effective across both genders, with slightly greater reductions seen in boys. Overall, the differences between sociodemographic groups are relatively small, with the programme consistently increasing lifestyle scores across the board. Interestingly, the groups that initially lagged behind appear to show the most improvement.

What is the economic value of the service?

The HLP service demonstrates strong value for money, with a return on investment of £6.92 for every £1 spent, based on quantified costs (£236,294.56) and benefits (£1,635,364.66).

Recommendations

HLP staff are delivering excellent support and should continue engaging parents with curiosity, compassion, and active listening skills. Interviews with parents have underscored the value of receiving expert input and having the opportunity to ask questions about parenting. However, the evaluation has identified some areas where the service could be further improved on its next phase:

Acceptability

- While the HLP team has made considerable progress in understanding cultural foods and parenting practices, both HLP staff and parent interviews suggest that further efforts are needed to enhance strategies for engaging with families on their cultural patterns. This should be approached both through direct conversations and with the aid of translators.
    - Recommendation: Provide additional training for staff on how to explore cultural foods and practices using professional curiosity, focusing on asking non-judgemental questions about the significance of certain practices and avoiding assumptions. This training could also include key cultural practices to better equip staff to suggest and co-produce appropriate solutions and alternatives.

Accessibility

- Beyond paper-based materials, interviews with professionals and parents indicate a demand for a digital offering, such as an app or website, to host resources. Some parents suggested a forum for connecting with other parents and videos summarising key session ideas.
    - Recommendation: Co-produce a digital platform with parents that enables families to explore information at their convenience and share it with others.
- Some parents noted that other parents in their area were unaware of the HLP service, suggesting a need to further promote the self-referral route.
    - Recommendation: Work with parents and key local services, such as places of worship, playgrounds, and social prescribing initiatives, to design marketing and promotional activities that raise awareness of self-referral routes.

- Many parents felt that the HLP service is relevant and highly beneficial for all families with babies or toddlers and should be universally accessible. If funding levels permit, it may be feasible to expand the referral criteria.
    - Recommendation: Consider whether the referral criteria could be broadened to increase access.

Quality

- Interviews with professionals indicated a need for additional training to support conversations about weight and to encourage informed acceptance of referrals to the HLP service.
    - Recommendation: Offer further training for staff in referral partner organisations to increase the effectiveness of these conversations and improve acceptance of referrals.
- The HLP service has successfully embedded referral pathways with the 0-19 service. However, further opportunities exist to establish referral pathways with additional early years and primary care services.
    - Recommendation: In the next phase of HLP development, explore partnerships with other early years and primary care services to increase reach and improve accessibility through expanded referral pathways.

Long-Term Behavioural Support

- Findings suggest that targeted support may be needed to reinforce long-term behavioural changes, particularly in maintaining home-cooking habits and reducing screen time. Quantitative analysis showed slight declines in these areas, indicating room for improvement.
    - Recommendation: Develop additional follow-up strategies to reinforce key behaviours, such as home cooking and screen time reduction, beyond the initial intervention period. This could include periodic check-ins or resources for continued support.

Enhanced Evaluation and Follow-Up Data Collection

- While promising outcomes have been observed, increasing follow-up participation and gathering information from families invited but not attending would strengthen understanding of behaviour change over the medium term and enhance data reliability.
    - Recommendation: Expand follow-up efforts to include a larger number of participants and, if feasible, collect data on families who did not attend the programme. This will help provide a fuller picture of behaviour change and ensure more comprehensive outcome tracking.
- Some evaluation and feedback mechanisms were implemented a year after the HLP service launch, partly due to limited team capacity.
    - Recommendation: Embed evaluation processes at the outset of the programme to enhance data quality and quantity, enabling better outcome measurement and continuous service improvement.

Assessment of Non-Participants and Counterfactual Development

- Understanding the characteristics of families who were invited but did not attend could offer insights into potential barriers to participation. While these insights may not fully serve as a counterfactual, they would highlight differences between participants and non-participants. Alternatively, a matched counterfactual group could be developed from families in other areas.

- Recommendation: Consider developing a counterfactual for future programme iterations, either by assessing non-participants or by creating a matched comparison group. To implement this, plan for additional resources, such as incentives and collaboration with partner organisations (e.g., health visiting services), at the programme's outset.

Evaluating Wider Family Impact

- Although the programme primarily focuses on children, it may have valuable indirect effects on the wider family. Evaluating its impact on parents, siblings, and the family environment could provide insights into the programme's broader efficacy and potential areas for adaptation.
    - Recommendation: Include assessment measures to capture the programme's wider impacts on the family, potentially through parent interviews or family surveys, to enhance understanding of indirect benefits and inform future adaptations. This could be done with a same of participants.

Improving Data Quality and Relevance

- For future programme delivery, it is essential to refine data collection tools, including question wording, response formats, and behavioural influence questions. This could improve data quality and provide more relevant insights into the drivers of behaviour change.
    - Recommendation: Review and revise data collection instruments to improve data quality and relevance. Consider adopting questions from international questionnaires, such as asking "What is the most important factor when deciding what to eat?" [a. Healthy. b. Taste. c. Cost. d. Convenience. e. Other], to better understand family motivations and behavioural influences.

Limitations

While the HLP service, the 0-19 service, and other senior SSBC staff fully collaborated on this evaluation, we encountered some limitations that were difficult to overcome.

Lack of counterfactual

Due to practical and resource constraints, it was not possible to construct a valid counterfactual to compare service data with a control group and more effectively assess net outcomes. In addition to analysing pre-, post-, and follow-up service data, the views and perceptions of service users and professionals were explored as a proxy.

Low Levels of Follow-Up Service Data

The follow-up assessment, also referred to as the 3-month assessment, was only introduced in September 2023, just before the evaluators were commissioned and a full year after the service began operations. As such, we were not able to include a complete dataset to evaluate net outcomes, which was considerably smaller than the total number of service users.

Drop-Outs

We were unable to assess the impact on families and children who did not complete the programme, even though most of them had received multiple sessions.

Difficulties in Engaging Service Users for 1:1 Interviews

Seven service users were selected and interviewed as detailed above. While these service users may not be fully representative of the entire service user group, the insights offered by these parents are valuable. Challenges in recruiting and engaging a fully representative group included communication issues, lack of interest, parents' work patterns, and the responsibilities of parenting. One parent needed to reschedule and ultimately cancel the interview due to the competing needs of her two children with special educational needs.

Recruiting and engaging parents took much longer and much more effort than estimated due to both the recruitment process itself and barriers to engaging parents. For consent and data protection purposes, HLP team first had to contact the parent first and then pass on details to the evaluation team. The evaluation team often needed to make multiple contact attempts for most parents, as many did not answer the phone on the first attempt. Once interview appointments were scheduled, there were a number of no-shows, likely due to the demands of parenting and work. This was despite the offer of a £25 voucher for participation. As a result, fewer interviews were conducted than initially envisioned.

Engagement from other referral partners

Although we attempted to engage many referral partners through working with the HLP Leads, we were not able to engage with anyone outside the 0-19 service.

References

A list of references cited in the evaluation report.

Agaronov et al (2018)' Inclusion of Sleep Promotion in Family-Based Interventions To Prevent Childhood Obesity' [Online] Available at: 10.1089/chi.2017.0235 (Accessed: 31/10/2024)

Alshahrani ,A. Shuweihdi, F. Swift, J. Avery, A. (2021) 'Underestimation of overweight weight status in children and adolescents aged 0-19 years: A systematic review and meta-analysis' [Online] Available at: https://doi.org/10.1002/osp4.531 (Accessed: 31/10/2024)

Arisaka, O., Ichikawa, G., Koyama, S., & Sairenchi, T. (2020) 'Childhood obesity: Rapid weight gain in early childhood and subsequent cardiometabolic risk' [Online] Available at: 135-142. doi: 10.1297/cpe.29.135 (Accessed: 31/10/2024)

Ash, T. Agaronov. Young, T. Aftosmes-Tobio. A. Davison, K. (2017) 'Family-based childhood obesity prevention interventions: a systematic review and quantitative content analysis' [Online] Available at: DOI: 10.1186/s12966-017-0571-2 (Accessed: 31/10/2024)

Bank of England (n.d.) 'Inflation calculator' [Online] Available at: https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator [Accessed: 29 October 2024]

Berge JM, Everts JC. (2011) 'Family-Based Interventions Targeting Childhood Obesity: A Meta-Analysis' [Online] Available at: 10.1089/chi.2011.07.02.1004.berge (Accessed: 31/10/2024)

Boccoli, S., Djuric, O., Bonvicini, L., Davoli, A. M., Ferrari, E., Ferrari, F., Street, M. E., & Rossi, P. G. (2020) 'Early life weight patterns and risk of obesity at 5 years: A population-based cohort study' 134 [Online] Available at: doi: 10.1016/j.ypmed.2020.106024 (Accessed: 31/10/2024)

Denese, M. D., Gleeson, M., Kutikova, L., Griffiths, R. I., Azough, A., Khunti, K., Seshasai, S. R. K., & Ray, K. K. (2016) 'Estimating the economic burden of cardiovascular events in patients receiving lipid-modifying therapy in the UK' [Online] Available at: doi: 10.1136/bmjopen-2016-011805

Golan, M. Crow, S (2012) 'Targeting Parents Exclusively in the Treatment of Childhood Obesity: Long-Term Results' [Online] Available at: https://doi.org/10.1038/oby.2004.45

Gunnarsdottir, T, Njardvik, U. Olafsdottir, A . Craighead,L. Bjarnason, R (2012) 'The Role of Parental Motivation in Family-Based Treatment for Childhood Obesity' [Online] Available at: https://doi.org/10.1038/oby.2011.59

House of Commons, Health and Social Care Committee 2019 (2019) 'First 1000 days of life' [Online] Available at: https://publications.parliament.uk/pa/cm201719/cmselect/cmhealth/1496/1496.pdf [Accessed: 30 October 2024]

Kawanaka, M., Nishino, K., Morimoto, Y., Ishii, K., Tanikawa, T., Urata, N., 1, Suehiro, M., Sasai, T., Haruma, K., & Kawamoto, H. (2020) 'Progression from nonalcoholic fatty liver to nonalcoholic steatohepatitis cirrhosis confirmed by liver histology after 14 years' [Online] Available at: doi: 10.2169/internalmedicine.6118-20

Liu S, Marques IG, Perdew MA, et al (2019) 'Family-based, healthy living intervention for children with overweight and obesity and their families: a 'real world' trial protocol using

a randomised wait list control design' [Online] Available at: 10.1136/bmjopen-2018-027183
Mayo Clinic (2022) 'Childhood obesity' [Online] Available at: https://www.mayoclinic.org/diseases-conditions/childhood-obesity/symptoms-causes/syc-20354827 [Accessed: 29 October 2024]
Miller AL, Lumeng JC, LeBourgeois MK (2015) 'Sleep patterns and obesity in childhood' [Online] Available at: 10.1097/MED.0000000000000125 (Accessed 31/10/2024)
Morgan, A., Hartmanis, S., Tsochatzis, E., Newsome, P. N., Ryder, S. D., Elliott, R., Floros, L., Hall, R., Higgins, V., Stanley, G., Cure, S., Vasudevan, S., & Pezzullo, L. (2021) 'Disease burden and economic impact of diagnosed non-alcoholic steatohepatitis (NASH) in the United Kingdom (UK) in 2018' [Online] Available at: doi: 10.1007/s10198-020-01256-y (Accessed 31/10/2024)
NHS (2022) 'Cardiovascular disease' [Online] Available at: https://www.nhs.uk/conditions/cardiovascular-disease/ [Accessed: 29 October 2024]
NHS (2024) 'Agenda for change – Pay rates' [Online] Available at: https://www.healthcareers.nhs.uk/working-health/working-nhs/nhs-pay-and-benefits/agenda-change-pay-rates [Accessed: 30 October 2024]
NICE (2015) 'Obesity in children and young people: prevention and lifestyle weight management programmes' [Online] Available at: https://www.nice.org.uk/guidance/qs94 [Accessed: 30 October 2024]
NICE [PH47] (2013) 'Weight management: lifestyle services for overweight or obese children and young people' [Online] Available at: 1 Recommendations | Weight management: lifestyle services for overweight or obese children and young people | Guidance | NICE [Accessed: 30 October 2024]
NIHR Policy research unit in Obesity (2022) 'OPRU Briefing Paper - Assessing the effectiveness of obesity interventions in the early years in U'K studies: a systematic review' [Online] Available at: h chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.ucl.ac.uk/health/sites/health/files/mar22-assessing_effectiveness_obesity_interventions_in_early_years.pdf [Accessed: 30 October 2024]
Nottingham Insight (n.d) 'Income Deprivation Affecting Children Index (IDACI)' [Online] Available at: https://www.nottinghaminsight.org.uk/themes/deprivation-and-poverty/income-deprivation-affecting-children-index-2019/ (30/20/24)
Office for National Statistics (2021) 'Exploring local income deprivation' [Online] Available at: https://www.ons.gov.uk/visualisations/dvc1371/#/E06000018 [Accessed: 30 October 2024]
Robinson, E (2017) 'Overweight but unseen: a review of the underestimation of weight status and a visual normalization theory' [Online] Available at: 10.1111/obr.12570 (31/10/2014)
Shah, N. M., & Kaltsakas, G. (2023) 'Respiratory complications of obesity: From early changes to respiratory failure' [Online] Available at: doi: 10.1183/20734735.0263-2022 (Accessed: 31/10/2024)
Stedman, M., Lunt, M., Davies, M., Livingston, M., Duff, C., Fryer, A., Anderson, S. G., Gadsby, R., Gibson, M., Rayman, G. (2020) 'Cost of hospital treatment of type 1 diabetes (T1DM) and type 2 diabetes (T2DM) compared to the non-diabetes population: A detailed economic evaluation' [Online] Available at: doi: 10.1136/bmjopen-2019-033231 (Accessed:31/10/2024)

Van de Kolk, I., Verjans-Janssen, S.R.B., Gubbels, J.S. et al.(2019) ‘ Systematic review of interventions in the childcare setting with direct parental involvement: effectiveness on child weight status and energy balance-related behaviours’ [Online] Available at: https://doi.org/10.1186/s12966-019-0874-6 (Accessed:31/10/2024)
Viner RM, Kinra S, Christie D, et al. (2020) ‘Chapter 2, Study A: scoping the impact of the National Child Measurement Programme on the Childhood Obesity Pathway’ [Online] Available at: https://www.ncbi.nlm.nih.gov/books/NBK555470/ (Accessed:31/10/2024)
Zhang, P. Tang, X. Peng, X. Hao, G. Luo, S. Liang. X (2022) ‘Effect of screen time intervention on obesity among children and adolescent: A meta-analysis of randomized controlled studies’ [Online] Available at: https://doi.org/10.1016/j.ypmed.2022.107014 (Accessed:31/10/2024)

Appendices

Additional information, such as detailed data tables, graphs, or maps, that support the evaluation findings and conclusions.

Appendix 1- Evaluation framework

Outcome of the intervention	Assumptions	Evaluation questions	Indicator of the intervention	Who /what can help respond the qs?	Data collection method	Data collection point/timescale
That children and their families will be eating healthier meals and be more physically active. This will also bring awareness and influence behaviour change in friends, families and wider community.	The intervention influences healthier weight, better oral health, broader taste paletes.	How well has the service contributed to behaviour change within families?	Self-reported behaviour change	Qualitative evaluation interview data set. Service users who completed the programme	Semi-structured interviews with former service users. Data transfer.	April May June 2024
		How does the context affect implementation and outcomes?	The way families source and prepare food, impact of cost of living. Cultural food diets, understanding of growth charts. Other services available to families, e.g. health visiting service	Service users who completed the programme Key staff in Children's PH Nursing Service HLP team Staff from Eating and Moving for	Semi-structured interviews with current service users Semi-structured interviews with staff in Children's PH Nursing Service	January February March 2024

				good Health strategy, re options currently available for local families	Semi-structured interviews with staff in HLP team.	
	The intervention will provide staff with knowledge and resources to help them promote healthy eating and physical activity and will refer to the HLP offer appropriately	What has helped and hindered staff (across services) in developing an understanding of the potential benefits of the service? How has this understanding helped them support families both in their existing roles and in recognising and responding to the need for specialist support?	Staff's perceptions of the HLP service offer to them and families, including training, support, the value of BMI as an indicator of healthy weight. Missed opportunities, eg referrals that should have been made but the conversation did not happen. Inappropriate referrals.	Key staff in Children's PH Nursing Service Key staff in referral partner organisations	Semi-structured interviews with staff in Children's PH Nursing Service	January February March 2024

Outcome of the intervention	**Assumptions**	**Evaluation questions**	**Indicator of the intervention**	**Who /what can help respond the qs?**	**Data collection method**	**Data collection point/timescal e**
That children and their families will be eating	Services will be working jointly and in	To what extent has the specialist service integrated into the	Defined referral pathways with key partners	Key staff in referral partner organisations	Semi-structured interviews with	January February March 2024

healthier meals and be more physically active. This will also bring awareness and influence behaviour change in friends, families and wider community.	integrated ways.	local system and added value?	Perceptions of Partner organisations of the role and value of the HLP service.	HLP Team	staff in referral organisations. Semi-structured interviews with staff from HLP team	
	The offer is accessible and acceptable to parents	What has helped or hindered parents in recognising a need and reaching out for help?	Explore service users perceptions of the service, including accessibility and acceptability. Reasons why some parents might not take up the HLP service.	Service users who completed the programme Service users who dropped out of the programme Key staff in Children's PH Nursing Service	Semi-structured interviews with current service users Semi-structured interviews staff in Children's PH Nursing Service	January February March 2024
	The offer meets parents needs.	Have outcomes been stronger for particular families, activities or situations and why?	Self-reported behaviour change by service users Correlations for service users characteristics and health outcomes	Service users who completed the programme All former service users data in	Follow up survey with former service users. Service user data transfer.	April - September 2024

				electronic record system.		
		What has been the contribution of the service to the observed outcomes (i.e., gross vs net outcomes)?	Perceptions of service users of how the service contributed to behaviour change where it has been reported.	Service users who completed the programme All former service users data in electronic record system.	Follow up survey with former service users. Service user data transfer.	April - September 2024
		What would have happened with families if they had not accessed the service?	Perceptions of service users of how their options if they had decided not to use the service.	Service users who completed the programme Service users who dropped out of the programme	Follow up survey with former service users.	April - September 2024

Outcome of the intervention	Assumptions	Evaluation questions	Indicator of the intervention	Who /what can help respond the qs?	Data collection method	Data collection point/timescal e

That children and their families will be eating healthier meals and be more physically active. This will also bring awareness and influence behaviour change in friends, families and wider community.	Monitoring and evaluation will provide insights which will positively influence in the service offer	What is being delivered to whom and how?	Number of children referred into the service. Characteristics of children being referred, including age, ethnicity, geography. Breakdown of interventions offered. % of closed referrals achieving less than 50%, 50%-75%, 75%-100% of goals	Electronic record system HLP Team (Katie and Lynn)	Electronic record system data analysis. Semi-structured interviews with HLP staff. Semi-structured interviews with former service users	January February March 2024 and July August September 2024.
		How well have the different activities and outputs of the programme supported the achievement of overall programme objectives?	Service users' perceptions of the offer received and its value to them. Development and test of HLP's theory of change.	Service users who completed the programme Service users who dropped out of the programme HLP team	Semi-structured interviews with former service users. Workshop with HLP team and parent champions.	April - September 2024

		How has co-production shaped the service and what has been the benefit?	Use of monitoring and evaluation data to refine the service offer. Use of lived experience to refine the service	HLP Team SSBC Parent Champions	Semi-structured interviews with HLP team.	April - September 2024
		How does the delivered intervention produce change?	Co-developed theory of change Service users' perception of what was most helpful from the support received	HLP team Service users who completed the programme	Semi-structured interviews with HLP Team. New question in qualitative evaluation with service users at discharge point.	April - September 2024

Appendix 2 – Theory of Change

Healthy Lifestyle Pathway

Monitoring and evaluation (internal and external)

These insights will have a positive influence in the service offer

Training offer for staff

Resources such as leaflets, media, online platform and website pages

Offer to parents: 1 to 1 sessions, group sessions, referrals, resources and information.

Staff will have knowledge and resources to help them promote healthy eating and physical activity and will refer to the HLP offer appropriately

The offer is accessible to parents

The offer is acceptable to parents

The offer meets parents needs

Services will be working jointly and in integrated ways.

Families will be better supported

That children and their families will be eating healthier meals and more physically active. This will also bring awareness and influence behaviour change in friends, families and wider community.

Healthier weight, better oral health, broader taste paletes.

Line of accountability

Reduce Nottingham's child obesity levels at reception age

Appendix 3 – Exhibit table for age, gender, eth

Group	# Children	% Children	Average Age in months when program started	Average of Number of siblings
Boy	**102**	**55%**	**27.1**	**1.3**
Asian; Asian British or Asian Welsh	26	25%	25.7	1.2
Black; Black British; Caribbean or African	21	21%	30.5	1.3
Mixed or Multiple ethnic groups	2	2%	47.5	1.5
Other ethnic group	19	19%	24.7	1.5
White	33	32%	26.0	1.2
Unknown	1	1%		
Girl	**83**	**45%**	**25.6**	**1.2**
Asian; Asian British or Asian Welsh	21	25%	26.6	0.9
Black; Black British; Caribbean or African	26	31%	24.6	1.4
Mixed or Multiple ethnic groups	4	5%	32.0	1.5
Other ethnic group	9	11%	27.6	0.7
White	22	27%	23.7	1.3
Unknown	1	1%		
Grand Total	**185**	**100%**	**26.4**	**1.2**

Royal Society for Public Health
John Snow House, 59 Mansell Street, London E1 8AN
+44 (0)20 7265 7300 | info@rsph.org.uk | rsph.org.uk
Registered charity in England and Wales (Reg no. 1125949) and in Scotland (Reg no. SC040750). Incorporated by the Royal Charter.