Evaluation of the Ask Teddi app in Thurrock

(Final report)

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1. Executive summary and key conclusions

1.1 Overview

Supporting the health, wellbeing and development of families with a child aged 0 – 5 is a strategic priority. There is a need for innovative, evidence-based interventions to support parent knowledge, confidence and healthy behaviour.

Responding to this need Thurrock council commissioned Solutions4Health to design an app aimed at parents with a child aged 0 – 5 in the region. The team used artificial intelligence technology and co-produced with families and local professionals an interactive app covering core aspects such as infant feeding, oral health, healthy diet and active play.

Swansea University and the University of Essex were commissioned to conduct an independent evaluation of the app combining a survey for all users (led by Swansea University) and focus groups/interviews with health visitors, children’s centre staff and parents who had used the app (led by the University of Essex). As with any evaluation, there are a number of limitations to our analysis, including the small number of parents recruited to take part in interviews: given the depth of responses across other areas of the evaluation this was mitigated, but themes emerging from the parent interviews should be treated with caution. Additionally, few fathers took part in the evaluation and the app was launched during the Covid-19 pandemic which may have affected use and perceptions of it.

Overall the Ask Teddi app is seen as a valuable, accessible and useful support for new parents and the professionals who support them. It is accessible and easy to use and offers an additional layer of localised support and information. In relation to the core areas evaluated, the app has helped to increase knowledge, confidence and positive behaviours relating to infant feeding, healthy diet, oral health and active play.

Recommendations made for improving the app focussed on expanding content and accessibility rather than criticisms of content or approach. This included provision in additional languages and the option to connect directly to other local mothers and health professionals.
1.2 Key conclusions

- A positive impact upon infant feeding was seen with parents attributing the app to helping them feel more knowledgeable and confident about breastfeeding and how to bottle feed safely and responsively. Mothers attributed the app in helping them breastfeed for longer with three quarters still breastfeeding at 6 – 12 months.

- The app improved oral health knowledge particularly around how frequently and how long to brush baby and children’s teeth and how to avoid sugary drinks. Parents described how the app helped them in reducing sugary drinks in their child’s diet with half booking a dental appointment because of information in the app.

- Parents credited the app with helping them know what foods to offer their children, in what portion sizes and how to prepare them. Recipes in the app were rated as useful and inclusive due to consideration given to cultural food preferences. As a result of the app many parents reduced sugar, saturated fat and salt in their child’s diet and increased fruits, vegetables, and fibre.

- The app also helped parents feel more knowledgeable and confident about getting more active play into their baby or child’s day, including increasing awareness of the importance of being active themselves. As a result of using the app parents reported that their baby was having more tummy time each day with walking children spending more time being active and outdoors.

- The Ask Teddi app was viewed as informative, supportive and non-judgemental. It helped parents feel more knowledgeable and confident about caring for their child. The app was also viewed as inclusive of all parents and backgrounds.

- Overall almost all parents planned to carry on using the app as their baby or child grew older, with all feeling that they could recommend it to a friend.

- Recommendations from parents and professionals for improving the app focussed on providing more content. Parents wanted more interaction with other parents and professionals and clearer signposting to local services.

- Professionals also gave positive feedback about the app, which they saw as being a good backup and resource for parents to use if they cannot talk to a health professional, or to look at in more detail following a health visit. 63% professionals rated the Ask Teddi app overall as a good resource both for parents/families.

- All of the professionals in the second focus groups are now promoting the app to parents, a change from the first focus groups when some were not actively promoting it.

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1 An interim report was produced after the first two focus groups in May 2021, the findings from which were used to help shape the app.
• Professionals felt the app looks colourful and inviting and that it contains good and trusted information that is the same information that they would give to parents. The FAQs are those that parents often ask and provide good information.

• The Ask Teddi app was seen as another tool for PASS/children’s centre staff to use and to make them more efficient. It is a positive element for supporting families to improve their knowledge or confidence in parenting. However, improvements could not be ascribed purely to Teddi but to a combination of information sources and the work they are doing with families.

• Health visitors in the focus group did not feel that the Ask Teddi app has changed how they are working with parents. Professionals in the survey were split about whether they have seen a positive difference in the parents/families they are working with in terms of their knowledge and behaviours as a result of the app.

• Three quarters of professionals said that the app has not reduced the number of contacts they have with some parents. However, a proportion of professionals felt that the app allows them to give out fewer leaflets as they are able to signpost parents to the app after showing them what it looks like.

• The early issues highlighted appear to have largely been resolved, although the message that Teddi has gone for a cuppa (indicating a problem with internet connectivity) still occurs sometimes and some specific questions still receive an inappropriate response.

• Some professionals said they are still having some difficulty using the app and that some parents have found navigating around the app has been difficult.

• There were mixed views about the conversations with Teddi: professionals felt that some families would probably find it frustrating while other families (especially if they are isolated or vulnerable) would find this really useful.
2. Recommendations and suggested improvements

2.1 Recommendations

- Allow parents to easily opt out of receiving Teddi’s daily ‘how are you?’ query.
- Information/guidance is needed on how to choose a language for the app.
- Provide a facility to search the FAQs.
- Consider providing a facility for parents to connect with and talk to other parents through the app.
- Look at whether it is feasible to provide an option where parents can ask a question of a healthcare professional via the app, for them to reply later.
- Consider providing information about older children on the app.
- Consider having chapters on early communication skills and on infant mental health, plus information for parents of children with additional needs.
- Consider creating a separate section for the questions on toilet training.
- Consider introducing activities promoting healthy lifestyles that children can do on the app.

2.2 Suggested improvements from parents

- Being able to connect with and talk to other parents through the app.
- Providing information on older children.
- Being able to ask a question of a nurse on the app, for them to reply when they can.
- Having activities on the app for children to do that promote healthy lifestyles.
- Having the ability to search the FAQs.
- Whether the app could also handle red books.
- In the dental hygiene section there are two identical questions with different answers: the questions should be changed to something more fitting.
- When clicking back from the information, the app takes you to the top instead of where the user previously was, which “is a little annoying”.
2.3 Suggested improvements from professionals

- If potential users are asked to pay £4.99 to download the app, the message should make it clear that it is free to users in Thurrock if they allow the app to access their location.
- Include the contact number for the Thurrock health visitor duty line/single point of access\(^2\).
- Possibly provide a way for parents to contact the health duty line with a message via the app (there were mixed views about this suggestion).
- Consider signposting parents to local services (including contact details), support groups and ‘Ask Thurrock’ from the app.
- Include on the app a link to the children’s centre timetables in the local area.
- Signpost from Teddi to the further and more detailed information available on some of the more specialist apps.
- Introduce some form of glossary or section on the app with all of the links in one place that parents could then click on to access, or a search bar.
- Provide the option of different languages on Teddi, or signpost to information in another language.
- Having chapters on early communication/language skills, brain development and infant mental health, plus information for parents of children with additional needs.
- Including the information provided in handouts from professionals, such as the Baby Friendly initiative (in the new birth packs) and advice about screen time (from the speech and language team).
- Creating a separate section for the questions on toilet training and improving the explanations on sleep, the importance of play, emotional wellbeing, tantrums and infant feeding.
- Introduce a topic on infant mental health and early communication skills.
- Provide information for parents of children with additional needs, including services and support groups to signpost them to.
- Explain what different services and roles actually do (particularly helpful for parents from other countries) and provide a link to the range of services that parents can access in Thurrock.
- Consider introducing a live chat option, either where she could chat to other parents or where she can ask a question of a professional.
- Include more videos on the app.

\(^2\) This is now included in the Thurrock pop up, but the fact that it was suggested in the second focus groups means that at least some professionals are not yet aware of it.
3. Background

This section of the report provides the background context that led to the recognition of the need for, and development of, the Ask Teddi app. It explores the importance of the first five years of life, the need for parental support during this period, and key areas for investment and focus. It then explores the design and implementation of the app and introduces the evaluation.

3.1 The importance of birth to five

There is increasing recognition that the period from birth to five years old is a critical time in the development of health and wellbeing throughout childhood, adolescence and into adulthood. Early investment in the support and services that families need is recognised by the government as vital due to its protective impact upon child physical and cognitive development, social development, readiness for school and later educational outcomes (DHSC, 2021). Public health policy in the UK is clear as to the importance of early investment to preventing smaller challenges developing into more serious issues. This supports not only the health and wellbeing of children and families but our society and economy in the future (Darling et al, 2020).

Policies such as Public Health England’s ‘Best start in life and beyond’ seek to ensure parents have the support they need during pregnancy, the postnatal period, and the early years of their child’s life (PHE, 2021). It recognises that universal and targeted public health services are crucial to improving the health and wellbeing of all children, particularly in helping establish good foundations for physical, intellectual and emotional health. Key areas of focus include:

- supporting the transition to parenthood and the early weeks
- supporting maternal and infant mental health
- supporting breastfeeding (initiation and duration)
- supporting healthy weight and healthy nutrition
- improving health literacy; reducing accidents and minor illnesses
- supporting health, wellbeing, and development.

The Best start policy builds on existing programmes such as the Healthy Child Programme founded in 2009 (and which is currently being updated and modernised) (DHSC, 2009) and Public Health England’s ‘Health matters: giving every child the best start in life’ (PHE, 2016). Both these programmes focus on aspects such as screening, immunisation, health and development reviews, wellbeing and parenting for child health and development. Central to each are elements such as promoting attachment and positive parenting, healthy eating and activity, increase breastfeeding rates and enhance readiness for school. Overall they emphasise how early childhood experiences such as sensitive attuned parenting and high-quality early education and care lay the foundations for good child mental and physical health, with parents at the heart of this (PHE, 2016).
2.2. Key areas of intervention and support

As noted above, the Ask Teddi App includes information on a number of public health priority areas of support for families including infant feeding, oral health, child healthy eating, and active play. Although the app covers information on a broader range of topics, these four core areas of information were selected for evaluation due to the established evidence of their impact upon child health and development and identified parent need for support in many of these areas. A brief rationale for the inclusion of these elements both in the app and evaluation is presented below:

2.2.1 Infant feeding

Breastfeeding is established as protecting infant and maternal health and the Department of Health and Social Care therefore encourages exclusive breastfeeding for the first six months postpartum followed by continued breastfeeding for the first year and beyond (SACN, 2018). Infants who are breastfed have a low risk of respiratory, gastrointestinal and ear infections, alongside impacts upon allergies, obesity cognitive development. Mothers who breastfeed have greater protection against reproductive cancers, heart disease and diabetes, with protection increasing as duration of breastfeeding accumulates (Victora et al, 2016). Together this reduces pressure on primary care and hospital services (Renfrew et al, 2012).

Consistent, timely, and high-quality support plays an important role in helping women to initiate and continue breastfeeding (McFadden et al, 2017). Unfortunately, many women struggle to find this support, stopping breastfeeding in the early weeks, often before they are ready to do so (McAndrew et al, 2012). Likewise, good information and support for those who are using infant formula is also important in helping parents prepare feeds safely and feed responsively. However, many women feel they do not get this support, feeling judged in its absence or relying on formula companies for information (Appleton et al, 2018; Fallon et al, 2017). Interventions that adequately and sensitively support families with both breast and formula feeding are therefore important.

2.2.2 Oral health

Guidance on good oral health encourages parents to brush their baby / child’s teeth and gums twice a day. This can start before first teeth emerge. Once the first tooth has emerged parents should take their child to a dentist regularly. Parents should supervise tooth brushing until their child is at least seven. Alongside this it is advised that parents limit or do not introduce sugary foods and drinks to their child’s diet (PHE, 2019).

Unfortunately tooth decay in children under five remains common with just under a quarter having today decay with on average 3 – 4 teeth affected (PHE, 2018). Yet over 90% of tooth extractions in this age range are avoidable with the right preventative dental care. Oral health issues can leave children experiencing pain, interfere with sleep and lead to children missing school – alongside having implications for future oral health.

Research has shown that parents can face many barriers in following oral health guidelines. These include being unsure of what guidelines to follow, a lack of confidence, parents own experience and family influences (Isong et al, 2010). Controlling sugar in
their child’s diet is a particularly difficult area, influenced heavily by the attitudes and behaviours of others, alongside media influences, food affordability and supermarket marketing strategies (Duijster et al, 2015). For babies and younger children a lack of awareness or misunderstanding of the need to brush gums is common, exacerbated by health visiting shortages (Eskyte et al, 2021). Good advice and information on oral health is therefore another important area.

2.2.3 Healthy diet
Child diet can have important implications for child weight and wider health and development. Childhood obesity is associated with a range of health issues in adulthood, with increasing rates of hypertensive and endocrine issues emerging in childhood and adolescence (Abarca-Gómez et al., 2017). It also has significant negative implications for child mental health and social wellbeing (Yanovski, 2015). However the latest full National Child Measurement Programme conducted in 2019 – 2020 found that 13.3% of children in reception were overweight and 14.4% already obese. This rose to 15.4% who were overweight and 25.5% who were obese by the end of primary school (2020/21). Unfortunately this represented a significant increase during the pandemic (NHS, 2021).

Despite much of the media focus is placed on childhood overweight and obesity, child malnutrition remains a significant issue too, often co-existing alongside obesity (WHO, 2017). Poor dietary quality has also been linked to poor academic achievement, behaviour reduced immune function, and exhaustion in children (Cohen et al, 2016). Although no official measure of ‘dietary quality’ exists, guidance focuses on encouraging parents to offer a diet rich in fruit and vegetables, healthy fats, lean proteins and fibre whilst reducing or avoiding intake of added sugars in food and drink, snack products and processed foods. However a report from the National Diet and Nutrition Survey (NDNS) for 2016 – 2019 found that the majority of under-fives exceeded intake for added sugar and saturated fat whilst under consuming fibre and fruits and vegetables (PHE, 2020).

Although there are genetic influences on overweight and obesity and dietary variety, environmental factors such as socioeconomic status, home environment and wider factors such as advertising play a significant role. Parental knowledge, own eating behaviour and family traditions can be central to this (Kininmonth et al, 2020). Positively, this means that child diet is malleable and can benefit from interventions that are sensitively designed to remove barriers to healthy eating (Black et al, 2017). Interventions that target parental knowledge, confidence and self-efficacy can be very effective if designed in a way that helps remove systemic barriers to healthy eating (Blake-Lamb et al, 2016).

2.2.4 Active Play
Finally, active play is recognised as an important part of health and development for children. Play encompasses many elements but active play can include activities such as games, riding a bike, kicking a ball and jumping. For younger babies it may include ‘tummy time’ (placing a non-mobile infant on their tummy), rolling and crawling. Outdoor play offers children more space and freedom as well as enabling them time in the fresh air. Conversely, screen time (on computers, tablets and television) is almost the opposite of active play.
The ‘active’ element of active play helps to protect against overweight and obesity and the issues already presented (Herrington & Brussoni, 2015). Active play also increases child fitness and lung function and can help reduce complications from illnesses such as asthma (Westergren et al, 2016). However the benefits of active play are wider than that. It can also help children to develop their social, emotional, and problem-solving skills (Bateson, 2015). It can also help younger children develop their gross and fine motor skills (Roach & Keats, 2018). For babies, ‘tummy time’ supports the development of gross motor movements, alongside crawling and rolling skills, in some cases even helping to reduce high BMI. Tummy time can also enhance social and emotional skills (Hewitt et al, 2020). Conversely high levels of screen time are associated with an increased BMI, lower activity and poorer sleep quality (Janssen et al, 2020).

The World Health Organisation has guidelines for active play and screen time. For infants under one year, 30 minutes of active play per day is recommended, alongside no more than one hour of screen time. For children aged 1 – 5 years 180 minutes a day is recommended, again with no more than one hour of screen time. Older children should take part in more vigorous activity than younger children (WHO, 2019). However worryingly, the amount of time babies and children spend on screens is increasing whilst active play is decreasing. Data from the Health Survey for England found that only 9% of children aged 2 – 4 were getting sufficient physical activity per day (HSCIC, 2016). Similarly only around 10% of babies receive tummy time every day (Hesketh et al, 2017).

Barriers to active play are multiple and include a lack of parental awareness of its importance, poor knowledge of how to engage in and incorporate active play during the day, and busy lives that are built around cars and public transport (Tremblay et al, 2012). Many parents of younger babies do not follow recommendations for tummy time as their baby becomes unsettled, parents worry that something is wrong, or are unsure how to entertain their baby during it (Hesketh et al, 2020). Conversely screen time is used to help settle or distract children, entertain when parents are working or busy, or simply because children enjoy it and ask for it – often because they see their parents using it and want to join in (Kildcare et al 2017).

2.3 The importance of novel interventions to support parents

Given the importance of the first five years of life and the barriers and challenges parents face in meeting recommendations around topics such as infant feeding, diet, oral health and active play, it is recognised that evidence based interventions are a vital part of supporting families (Mihelic et al, 2017). Support programmes are needed that foster parental confidence, knowledge and ability to positively parent their children. These interventions and programmes should be designed to fit the needs and specific context of different communities and offer consistent, evidence based and supportive information and care (Daro, 2016).

Although face to face support has been highlighted in the past as being an important and valued means of supporting (Strange et al, 2018) and protecting (Foreman, 2019) families, there is an increasing recognition of the importance that digital technology can play (Lupton 2017). Research has shown that parents use a variety of different websites,
social media forums and apps to access health and parenting advice and social support (Mackintosh et al, 2020).

Current events also provide opportunity for high quality digital innovations to support parents. First, there is a funding and staffing crisis across maternity, health visiting and specialist perinatal health services that has led to many parents struggling to find the support that they need (IHV, 2021). Although investment in this area is clearly vital, simultaneously innovative solutions are needed to enhance the information and support that families receive in the immediate future.

Second, the ongoing Covid-19 pandemic and subsequent lockdowns and changes to face to face services has led to a need for increased use video consultations or online resources. This has been a challenging time both for health professionals and families who have struggled with difficulties accessing support, and a feeling of isolation (Babies in Lockdown report, 2020). Many reports have highlighted that postnatal depression and other mental health difficulties increased during the pandemic alongside reduced parenting confidence, concerns about child development and breastfeeding challenges (Brown & Shenker, 2020; Vazquez-Vasquez et al, 2021). Numerous parenting organisations highlighted the need to invest in services that better supported the needs of parents (First 1001 Days Movement, 2020).

Based on this, the NHS Digital programme strongly emphasised the need for investment in innovative programmes that can support the needs of parents and young families by harnessing new technologies in an effective way (NHS Digital, 2021). Although development of the Ask Teddi App began before the pandemic, its further development and launch reflected this need.

2.4. The Ask Teddi App

In March 2021 Thurrock Public Health launched a digital wellbeing app to provide information to parents of children under 5, with the aim of improving health and wellbeing of families with a child under five. Recognising the needs of families with a child in this age group, through a social marketing report carried out as part of the Breastfeeding JSNA product led to the understanding that families in Thurrock would like digital information to support them with infant feeding in particular. A search was undertaken to find a company to deliver this product, and discovering that Solutions 4 Health had developed robo support for health improvement led to early discussions about a similar support tool for families for the wellbeing of children under 5.

The Ask Teddi App is a free app that offers advice and information for parents and carers of children under 5 in Thurrock. Using artificial intelligence to tailor information to individual need, the app offers parents and carers a responsive toolkit of expert and evidence based advice as well as giving them access to reliable resources and information around the clock.
Ask Teddi provides information on:

- Infant feeding (breast, formula and mixed feeding).
- Healthy eating including starting solids and fussy eating.
- Oral health.
- Sleep.
- Play and socialisation/being with others.
- Exercise and active families.
- Parental mental health and wellbeing.

The app was rolled out in a staged approach with early prototypes being trialled by professionals in Thurrock and small groups of users. Over a period of six months the app was refined and adapted before the public launch in March 2021. It was promoted to parents by health visitors, children’s centre staff and staff working within the Prevention and Support Services (PASS) team within Thurrock. The communications team at the Council and within Solutions 4 Health promoted the app on social media channels and through e newsletters to the residents in Thurrock. The Healthy Families Service providing Health visiting services in Thurrock were able to text families to share the website with details of the app. An animation was developed to explain to families how the app works and how to download it. The app’s launch and evaluation therefore coincided with the second major lockdown in the UK, with social distancing restrictions easing as time progressed.

2.5. Aims of the evaluation

The aims of this evaluation were to explore the impact of the Ask Teddi app upon parents knowledge and confidence in caring for their baby or child aged 0 – 5 years, alongside exploring the feasibility and acceptability of the App itself. Given the breadth and depth of information in the app the evaluation focused on four core areas of information: infant feeding, oral health, healthy diet eating and active play. Specifically, the evaluation explored:

1. Use and acceptability of the app: uptake, depth of use, recommendations to others
2. Impact of the app upon infant feeding knowledge, confidence and feeding decisions (including breastfeeding, bottle feeding and mixed feeding)
3. Impact of the app upon oral health including knowledge, confidence and oral health behaviours (i.e. tooth brushing, dental visits and reducing sugar)
4. Impact of the app upon knowledge, confidence and behaviours around healthy eating including foods offered, positive mealtime interactions and home cooking
5. Impact of the app upon knowledge, confidence and behaviours around active play including for non-mobile babies and mobile babies and older children
6. Integration with local services
7. Gaps and areas for improvement
4. Methodology

4.1 Design

The study used a mixed methods design to understand the perspectives of parents who downloaded and used the Ask Teddi app. This involved:

- Part One: An online questionnaire exploring parents use and perceptions of the app, alongside impacts upon knowledge and behaviours related to infant feeding, dental health, healthy eating and physical activity
- Part Two: Virtual focus groups with professionals, supplemented by an online survey, and phone interviews with parents.

Survey data were collected between June 2021 and October 2021. Two focus groups were held in May 2021, to understand professionals’ early experiences and feedback on the app and two further focus groups were held in November 2021, to understand professionals’ continuing experiences of the app. Parents participated in interviews during September and October 2021.

App use and data collection coincided with varying levels of lockdown and social distancing regulations which may have affected parents’ experiences and required that interview data was collected remotely. The implications of this approach are considered in the discussion. Approval for the survey arm of the study was granted by Swansea University College of Human and Health Sciences Research Ethics Committee whilst approval for the qualitative evaluation element was granted by Ethics Sub-Committee 2 of the University of Essex. All participants gave informed consent.

4.2 Participants

In part one, all parents and carers who downloaded the Ask Teddi app were invited to complete the survey. When users downloaded the app they were asked to provide registration details and at this point asked for consent to be sent information such as the invitations to take part in the evaluation. Eligibility for taking part in the research included being aged 16+ years old, having a baby or child 0 – 5 years old (parent or carer) and having downloaded and used the Ask Teddi app.

In part two, focus groups were arranged with professionals invited through their line managers. For the initial focus groups, one comprised six health visitors and the other comprised four children’s centre workers and one PASS member of staff. For the follow up focus groups, one comprised six health visitors and the other comprised three children’s centre/PASS members of staff. All health visitors and children’s centre/PASS staff were invited by email to complete the online survey, and 24 did so.

Interviews were carried out with three parents who use the Ask Teddi app and who indicated on the part one questionnaire that they would be willing to take part in further research: out of the 52 parents who provided an email address, 25 addresses were undeliverable and just three people responded to the interview request despite several prompts. The original intention was to interview up to ten parents using the app and also
five parents not using the app, but it proved very difficult to recruit participants even when getting nursery nurses or children’s centre staff to approach parents directly.

4.3 Measures

In part one interested participants completed an online questionnaire hosted by Qualtrics. The questionnaire included sections on parent and infant background information, followed by items exploring use and perceptions of the app in relation to four topics: infant feeding, dental health, healthy eating and physical activity. In these sections questions explored perceptions of the app’s usefulness, impact of the app upon knowledge and behaviour. Finally questions explored broad perceptions of the app and its impact. Specifically sections included:

- Background information Parent/ carer demographic background information (age, education, ethnicity, marital status, employment), infant factors (age, sex) and postcode to ensure participants lived in Thurrock
- Infant feeding: Feeding mode at birth and present time, reasons for stopping breastfeeding, responsive feeding, breastfeeding challenges, infant formula use (stage, type, how feeds are prepared), feeding knowledge and confidence.
- Dental health: Tooth brushing, dental visits, inclusion of sugary foods and drinks in infant/ child diet, knowledge and confidence in caring for child’s teeth. Impact of the app upon these behaviours.
- Healthy eating: Diet offered to children including fruit and vegetables, fibre, sugar and salt, alongside home cooking, food safety and family meal times. Impact of the app upon these behaviours.
- Active play: Knowledge and behaviours regarding active play for babies, children and parents. Impact of the app upon these behaviours.
- Overall perceptions of the Ask Teddi app including ease of use, recommendations to others and trustworthiness.

Questions in the survey were predominantly tick box or likert scale questions (strongly agree – strongly disagree) although a number of open-ended boxes were added for participants to expand on their experiences.

If parents / carers had more than one child aged 0 – 5 they were asked to select one child to think about the survey items for. This affected which sections of the survey were completed. Parents / carers who were completing the survey for a child over 1 did not complete the infant feeding items. Participants whose baby had not yet started solid foods did not complete the healthy eating items. Finally for physical activity, participants were directed to items that best fitted their baby / child’s developmental stage.

In part two, the focus group questions explored professionals’ views on the training they received about the app, the design of the app, what is good and what could be improved, promoting the app, the different sections, trust in the information contained in the app, barriers to using the app with parents, other websites or apps recommended to parents, whether the app has helped them work with parents or changed their working practices, and whether they have you seen any difference in the parents they are working with in terms of their knowledge and behaviours as a result of the app. The online survey questions were based around these question areas.
Parent interview questions asked about where they normally find information about child health, how they first heard about the app, the design of the app, the sections they have used most often, what is good about the app and what could be improved, how the information has helped them, whether they have changed their behaviour around health and whether they feel more confident about parenting their child as a result of using the app.

4.4 Procedure

For part one, all parents / carers who downloaded the app and gave permission to be contacted were sent an invite to take part in the survey approximately 4 – 6 weeks after they registered. This was to give parents / carers sufficient time to use the app and benefit from its information and support. Emails / text messages were sent out by the Ask Teddi development team detailing the background to the evaluation and brief details of what it would entail. Interested participants clicked on the link and were taken to the study information page which gave full details of the aims and procedure of the study, inclusion criteria and who to contact for more details about the study. Participants read through a series of consent statements and only if they agreed with all items did the full questionnaire load. At the end of the questionnaire a debrief loaded thanking participants and giving them more information about where to find additional parenting support if they needed it.

Parents / carers would likely have used different parts of the Ask Teddi app in relation to their existing knowledge and baby / child’s age. Therefore, at the start of each of the four main topic questions (infant feeding, dental health, healthy eating, and active play) participants were asked how much of this section they had used. For example, participants were asked ‘How much have you looked at the information about healthy eating on Ask Teddi?’ with response options of ‘lots’, ‘some’, ‘a little’ and ‘none’. If participants selected ‘none’ they were routed to the next section rather than answering questions about healthy eating.

Finally at the end of the questionnaire participants were invited to leave their contact details if they would like to take part in the in depth interviews about their perceptions and experiences of using the app.

4.5 Data analysis

Quantitative survey data were analysed using SPSS version 27 to produce descriptive statistics regarding use, acceptability and impact of the app. For the open-ended boxes in the survey a thematic analysis was conducted using a simple descriptive analysis (Sandelowski, 2010). Responses from each participant were read across each open-ended box. Next responses were read and re read again to identify smaller themes. These smaller themes were then grouped into larger sub themes (Braun & Clarke, 2006).

Qualitative data were analysed using thematic analysis (Braun & Clarke, 2006) based around the focus group and interview question areas.
5. Survey Findings

5.1 Survey participants

Two hundred and fifteen parents / carers took part in the survey. Overall, 196 (91.2%) were their child’s mother, 16 (7.4%) their child’s father, and 3 (1.4%) their child’s carer. Overall 77 participants completed the survey for a baby aged 0 – 12 months (35.8%) and 135 for a child aged 1- 5 years (62.8%). Further demographic details for these participants are shown in tables 1 and 2 below.

Table 1: Parent / carer demographic information for survey participants

<table>
<thead>
<tr>
<th>Category</th>
<th>Sub-category</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age</td>
<td>&lt;19</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>20-24</td>
<td>24</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>25-29</td>
<td>93</td>
<td>43.2</td>
</tr>
<tr>
<td></td>
<td>30-34</td>
<td>80</td>
<td>40.3</td>
</tr>
<tr>
<td></td>
<td>35-39</td>
<td>12</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>40-44</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Question not answered</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Education</td>
<td>No formal qualifications</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>GCSE or equivalent</td>
<td>98</td>
<td>45.6</td>
</tr>
<tr>
<td></td>
<td>A level or equivalent</td>
<td>85</td>
<td>39.5</td>
</tr>
<tr>
<td></td>
<td>Degree or equivalent</td>
<td>21</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>Postgraduate qualification or equivalent</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Question not answered</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Relationship status</td>
<td>Married</td>
<td>93</td>
<td>43.3</td>
</tr>
<tr>
<td></td>
<td>Cohabiting</td>
<td>54</td>
<td>25.1</td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>17</td>
<td>7.9</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>38</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>13</td>
<td>6.0</td>
</tr>
<tr>
<td>Parity</td>
<td>First time parent</td>
<td>176</td>
<td>81.9</td>
</tr>
<tr>
<td></td>
<td>Second time or more parent</td>
<td>39</td>
<td>18.1</td>
</tr>
</tbody>
</table>
Table 2: Parent/carer ethnicity for survey participants

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White British and Irish</td>
<td>87</td>
<td>40.5</td>
</tr>
<tr>
<td>Gypsy /Traveller</td>
<td>6</td>
<td>2.8</td>
</tr>
<tr>
<td>Black or Black British</td>
<td>16</td>
<td>7.4</td>
</tr>
<tr>
<td>Asian: Chinese</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td>Asian: Pakistani</td>
<td>9</td>
<td>4.2</td>
</tr>
<tr>
<td>Asian: Indian</td>
<td>17</td>
<td>7.9</td>
</tr>
<tr>
<td>Asian: Bangladeshi</td>
<td>13</td>
<td>6.0</td>
</tr>
<tr>
<td>Any other Asian</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Mixed / multiple</td>
<td>21</td>
<td>9.8</td>
</tr>
<tr>
<td>I’d rather not say</td>
<td>24</td>
<td>11.2</td>
</tr>
<tr>
<td>Question not answered/missing data</td>
<td>12</td>
<td>5.6</td>
</tr>
</tbody>
</table>

5.2. Infant feeding

Seventy-seven participants completed the questions relating to infant feeding. Of those participants, 52 (24.2%) had looked at the sections on infant feeding ‘lots’, 22 (10.2%) ‘some’, 1 (0.5%) ‘a little’ and 2 (0.9%) none. Only participants who had viewed lots, some or a little of the information completed items evaluating the apps infant feeding information (n = 75). The age of babies in this group ranged from 1 – 9 months with an average age of 4.5 months. Altogether 51 babies (68.0%) were aged 0 – 6 months and 23 aged 7 – 12 months (32.0%).

In terms of how participants were feeding their baby, at birth 64 (85.3%) had breastfed their baby with 11 (14.7%) giving formula milk. Further details of feeding at time of completing the survey are shown in table 3 for all babies and split by infant age.

Table 3: Infant feeding method at time of survey completion

<table>
<thead>
<tr>
<th></th>
<th>Only breastmilk</th>
<th>Mixed breast and formula milk</th>
<th>Only formula milk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>All babies</td>
<td>26</td>
<td>34.6</td>
<td>30</td>
</tr>
<tr>
<td>0 – 6 months</td>
<td>19</td>
<td>37.3</td>
<td>13</td>
</tr>
<tr>
<td>7 – 12 months</td>
<td>8</td>
<td>10.8</td>
<td>15</td>
</tr>
</tbody>
</table>
Participants were asked if they had introduced solid foods to their baby. Overall, 28 (36.8%) had introduced solid foods and 48 (63.2%) had not. For those who had introduced solid foods, 2 (7.1%) did so when their baby was three months old, 14 (50.0%) at four months, 8 (28.6) at five months and 4 (14.3%) at six months. All participants with a baby over six months old had introduced solid foods. For those under six months old, 8 (28.6%) had introduced solids. Two participants had introduced solids at three months and six at four months.

Participants were asked how useful they found the information on infant feeding. Overall, 49 (65.3%) found it ‘extremely useful’, 23 (30.7%) ‘very useful’, 3 (4.0%) ‘moderately useful. No participant rated it as ‘slightly’ or ‘not at all useful’.

**Figure 1: Chart showing respondents’ rating of the information on infant feeding**

All participants were asked if they were feeding their baby responsively i.e. looking for cues of hunger and satiety and feeding them when they want rather than feeding them to a strict routine before participants were split into sections exploring breast and formula feeding. Overall 51 (68.0%) stated they were feeding their baby responsively, 4 (5.3%) to a strict parent led routine and 20 (9.3%) to a loose parent led routine but letting them feed or stop a feed if their baby wanted to refused it. Parents who were breastfeeding were more likely to feed their baby responsively; of those following a strict routine one parent was mixed feeding and three were exclusively formula feeding.

**5.2.1. Breastfeeding**

Participants who were breastfeeding were asked a series of questions around how they perceived the breastfeeding information in the app and how it affected their experience of breastfeeding. Response options were via a 5-point likert scale [strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. The number who somewhat agreed / strongly agreed with each statement is shown in Table 4. Overall 54 participants completed these questions.
Table 4: Perceptions of breastfeeding information in the app showing strongly agree/somewhat agree for each statement

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made me feel more knowledgeable about breastfeeding</td>
<td>54</td>
<td>100</td>
</tr>
<tr>
<td>Helped me learn more about how breastfeeding protects my baby</td>
<td>54</td>
<td>100</td>
</tr>
<tr>
<td>Helped me learn to latch my baby on comfortably and without pain</td>
<td>54</td>
<td>100</td>
</tr>
<tr>
<td>Helped me understand the signs something was wrong e.g. thrush</td>
<td>53</td>
<td>98.1</td>
</tr>
<tr>
<td>Helped me understand signs that my baby was getting enough milk</td>
<td>54</td>
<td>100</td>
</tr>
<tr>
<td>Helped me know where to go for more support with breastfeeding</td>
<td>54</td>
<td>100</td>
</tr>
<tr>
<td>Helped me feel more supported to breastfeed</td>
<td>54</td>
<td>100</td>
</tr>
<tr>
<td>Gave ideas for how my partner could support me to breastfeed (if relevant – 50 responses)</td>
<td>44</td>
<td>90</td>
</tr>
<tr>
<td>Helped me to breastfeeding for longer</td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>

In the open ended boxes asking participants to expand on their responses, many highlighted different ways in which the information supported them:

The 2 videos are brilliant. Teddi is also very sweet and supportive. The instructions on how to position are clear and has made it easier. I also learnt i can do it in public i was always so nervous about that but i feel more at ease now.’ (Mother, 26, White, first baby)

The advice on positioning and how regularly i should feed my baby has helped. It is also encouraging which nice. The couple of videos i found helpful too.’ (Mother, 25, Mixed race, first child)

It’s been supportive as I found breastfeeding hard and even with my first child found it hard and was actually dreading the stress but the guidance on Teddi and videos has helped. I also like how you can talk and chat but also then just read faq answers and watch videos whenever you like. (Mother, 27, Mixed race, second child)

It’s supported me lots especially the guidance on positioning and when to know my baby has had enough milk/needs milk again. It’s made me feel more at ease too. My nurse at the start told me how to do it but having Teddi give so much help has been great. I’ve already recommended it to my friend who has a 2month baby girl. I like the question section too. It gives help on formula too but I don’t need that as it not doing it. Nice to know though. (Mother, 28, Bangladeshi, first child)
5.2.2. Using formula milk

Participants who were using formula milk were asked a series of questions about the type of formula milk they used with their baby. Forty-eight participants completed this section. Overall, 44 (91.7%) were using first stage infant formula with 43 (6.3%) using a second stage follow on formula and 1 participant (2.1%) unsure. Five participants using a non-standard infant formula such as ‘hungry baby’ or ‘comfort milk’. In terms of formula type, 28 (58.3%) used powdered infant formula only, 20 (41.7%) a mixture of powdered and ready to feed milks, with no participant using ready to feed milks only.

For making up feeds, 27 participants (56.3%) only used hot water from a kettle / hot water tap, 16 (33.3%) a formula milk preparation machine, and 5 (10.4%) a mixture of hot water and preparation machines. Overall 31 (64.6%) made up their baby’s feeds fresh for each feed, 17 (35.4%).

Next participants were asked a series of questions around how they perceived the formula feeding information in the app and how it affected their experience of formula feeding. Response options were via a 5 point likert scale [strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. The number who somewhat agreed / strongly agreed with each statement is shown in Table 5.

Table 5: Perceptions of formula feeding information in the app showing strongly agree/ somewhat agree for each statement

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made me feel more knowledgeable about formula feeding</td>
<td>48</td>
<td>100</td>
</tr>
<tr>
<td>Helped me learn more about how to safely prepare a bottle</td>
<td>44</td>
<td>91.7</td>
</tr>
<tr>
<td>Helped me learn more about which formula milk to give my baby</td>
<td>47</td>
<td>97.9</td>
</tr>
<tr>
<td>Helped me learn more about how much milk to give my baby</td>
<td>44</td>
<td>91.7</td>
</tr>
<tr>
<td>Helped me learn more about how to responsively bottle feed my baby</td>
<td>47</td>
<td>97.9</td>
</tr>
<tr>
<td>Helped me know where to go for more support with formula feeding if I needed it</td>
<td>44</td>
<td>91.7</td>
</tr>
<tr>
<td>Helped me feel more confident formula feeding my baby</td>
<td>48</td>
<td>100</td>
</tr>
</tbody>
</table>

In the open ended boxes asking participants to expand on their responses, many highlighted different ways in which the information supported them:

‘Videos are really good and the way teddi talks is sweet and supportive.’ (Mother, 29, Pakistani, first baby)

‘It’s really good, I feel much more supported as I felt a bit like a bother to keep asking my nurse / doctor about it. The videos on the app are fab and there’s so much great information. It’s also told to you in a really gentle and kind way.’ (Mother, 30, White, second baby)
‘It’s been so helpful and supportive, I’ve never had so much help and advice either online or in person. The videos, FAQs, how friendly and motivating Teddi is has really made me feel more confident over the last month. The closest thing to this app is baby buddy but it doesn’t give as much information or help as the feeding chapter.’ (Mother, 31, White, first baby)

‘Going through the faq section and chatting to teddy at odd times when i find it hard has helped. Videos good too.’ (Mother, 27, White, first baby)

5.3. Dental health

The second stage of the survey explored use of the sections on dental health in the app. One hundred and eighty two participants completed the questions relating to dental health. Of those participants, 66 (36.3%) had looked at the sections on dental health ‘lots’, 31 (17.0%) ‘some’, 25 (13.7%) ‘a little’ and 60 (33.0%) none. Only participants who had viewed lots, some or a little of the information completed items evaluating the apps dental health information (n = 122).

Reflecting on the app content, participants were asked how useful they found the information on dental health. Overall, 69 (56.6%) found it ‘extremely useful’, 51 (41.8%) ‘very useful’, 32 (1.6%) ‘moderately useful. No participant rated it as ‘slightly’ or ‘not at all useful’.

Figure 2: Chart showing respondents’ rating of the information on dental health

Overall, 111 (91.0%) participants had a baby / child with visible teeth. All participants brushed their baby / child’s teeth / gums with 118 (96.7%) doing so more than once per day and 4 (3.3%) once per day. For duration, 57 (46.7%) brushed for more than two minutes, 47 (38.5%) for around two minutes and 18 (14.8%) for around one minute. In terms of who brushed the teeth, 93 (76.2%) did it for their child, 27 (22.1%) tried to help them and 2 (1.6%) did it themselves. All participants whose child did it themselves had a child over three years old.
Participants were asked what drinks their baby consumed (apart from breast or formula milk) regularly i.e most days of the week. The number who regularly consumed each drink are shown below in table 6. Additionally participants were asked which drink was the most common drink for their baby to consume. Water was the main drink for 100 babies (81.9%) and squash the main drink for 22 babies (18.1%).

**Table 6: Proportion of babies / children who consume drinks regularly**

<table>
<thead>
<tr>
<th>Drink</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>114</td>
<td>93.4</td>
</tr>
<tr>
<td>Juice</td>
<td>31</td>
<td>25.4</td>
</tr>
<tr>
<td>Squash</td>
<td>93</td>
<td>76.2</td>
</tr>
<tr>
<td>Cows milk</td>
<td>65</td>
<td>53.2</td>
</tr>
<tr>
<td>Fizzy drinks</td>
<td>13</td>
<td>10.6</td>
</tr>
<tr>
<td>Tea</td>
<td>7</td>
<td>5.7</td>
</tr>
</tbody>
</table>

When asked how their baby typically drinks any drink other than expressed breast milk or formula milk, 2 participants (1.8%) stated in a bottle, 2 (1.8%) in a sipper cup with a valve, 14 (12.3%) in a cup with a spout but no valve, 76 (66.7%) in an open cup / a cup with a cut out lid, and 28 (17.5%) in a cup with a straw.

Next participants were asked a series of questions around how they perceived the dental health information in the app and how it affected their experience of caring for their baby/ child’s teeth. Response options were via a 5 point likert scale [strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. The number who somewhat agreed / strongly agreed with each statement is shown in Table 7.

**Table 7: Perceptions of dental health information in the app showing strongly agree/ somewhat agree for each statement**

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made me feel more knowledgeable about when to brush my child’s teeth and for how long</td>
<td>120</td>
<td>98.4</td>
</tr>
<tr>
<td>Helped me feel more knowledgeable about reducing the sugar in my baby/ child’s diet so it doesn’t harm their teeth</td>
<td>121</td>
<td>99.2</td>
</tr>
<tr>
<td>Helped me feel more confident brushing my child’s teeth</td>
<td>120</td>
<td>98.4</td>
</tr>
<tr>
<td>Helped me feel more confident about teaching my child to brush their own teeth (now or in the future)</td>
<td>120</td>
<td>98.4</td>
</tr>
</tbody>
</table>

Finally participants completed a series of questions around dental health behaviour considering whether ‘As a result of Ask Teddi’ they had changed their behaviour.
Participants were given the response options of yes, no, and ‘I was already doing what was recommended’ to reflect positive behaviours before using the app.

Table 8: Dental health behaviours after using the Ask Teddi app

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Yes</th>
<th>No</th>
<th>I was already doing what was recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Brushed your child’s teeth for longer</td>
<td>93</td>
<td>76.2</td>
<td>4</td>
</tr>
<tr>
<td>Increased how often you brush your child’s teeth</td>
<td>96</td>
<td>78.7</td>
<td>5</td>
</tr>
<tr>
<td>Changed the toothpaste to one with fluoride in</td>
<td>58</td>
<td>47.5</td>
<td>10</td>
</tr>
<tr>
<td>Started giving water as a main drink</td>
<td>91</td>
<td>74.6</td>
<td>11</td>
</tr>
<tr>
<td>Cut down on any sugary drinks</td>
<td>110</td>
<td>90.2</td>
<td>3</td>
</tr>
<tr>
<td>Changed to a free flow or open cup</td>
<td>75</td>
<td>61.5</td>
<td>9</td>
</tr>
<tr>
<td>Cut down on snacks between meals</td>
<td>109</td>
<td>89.3</td>
<td>6</td>
</tr>
<tr>
<td>Taken my child to a dentist</td>
<td>70</td>
<td>57.4</td>
<td>16</td>
</tr>
</tbody>
</table>

In the open ended boxes asking participants to expand on their responses, many highlighted different ways in which the information supported them:

‘I hadn’t thought much about oral health and stuff before I thought brushing teeth once a day for a minute or so was enough as that is how I was raised but I want to do my best for my children and have learnt a lot and feel really supported by Teddi. Don’t want my child’s teeth falling out or getting diseases so we brush 2 times a day for 2 mins and cut the sugar and have water.’ (Mother, 25, White, second time mother)

‘I like how instead of just telling you what you should do it gives you ideas how you can make healthier decisions like swapping water in at mealtimes.’ (Mother, 27, Mixed race, first time mother)

‘I think it’s really helpful and reassuring to have talk to teddy and be reminded about the right things to do for my child’s oral health. Some information I already knew but it’s calming and makes you feel more confident to go through it all. I also...’
like it’s not just giving you information but having a friendly conversation with you’. (Mother, 28, White, second time mother)

‘It’s really good, made me feel like a better mum as I now act more intentionally when giving food or drinks to my son and I feel it has helped there go be more good days than bad’. (Mother, 30, White, first time mother)

‘I like how it is giving information in a gentle way without being judgmental but at same time giving you important advice like around what drinks to give and how to prevent decay and how best to brush teeth . Very good !!’ (Mother, 30, Bangladeshi, second time mother)

5.4. Healthy diet

The next topic in the app to be explored was the information regarding healthy eating for children. One hundred and eighty participants completed the questions relating to healthy eating. Of those participants, 94 (52.2%) had looked at the sections on healthy eating ‘lots’, 21 (11.7%) ‘some’, 21 (11.7%) ‘a little’ and 44 (24.4%) none. Again, only participants who had viewed lots, some or a little of the information completed items evaluating the apps healthy eating information went on to respond to further questions (n = 136).

Reflecting on the app content, participants were asked how useful they found the information on healthy diet. Overall, 98 (71.5%) found it ‘extremely useful’, 35 (25.5%) ‘very useful’, 4 (2.9%) ‘moderately useful. No participant rated it as ‘slightly’ or ‘not at all useful’.

![Figure 3: Chart showing respondents’ rating of the information on healthy diet](image)

Although all participants could look at the information and rate its usefulness, for the questions exploring a healthy diet only participants whose baby / child had started solid foods completed these items. Overall 132 participants had a child who was eating solid foods, excluding just 4 participants.

The first set of healthy eating questions explored how frequently parents engaged in healthy eating behaviours. Participants were given a series of statements and could
choose from ‘every day’, ‘5 – 6 days per week’, ‘3 – 4 days per week’, ‘1 – 2 days per week’ or ‘never’. The results are shown in table 9.

Table 9: Frequency of healthy eating behaviours

<table>
<thead>
<tr>
<th></th>
<th>Every day</th>
<th>5 – 6 days per week</th>
<th>3 – 4 days per week</th>
<th>1 – 2 days per week</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child eats at least 5 portions of fruit &amp; veg per day</td>
<td>9</td>
<td>6.8</td>
<td>25</td>
<td>18.9</td>
<td>75</td>
</tr>
<tr>
<td>My child eats a balanced diet</td>
<td>7</td>
<td>5.3</td>
<td>34</td>
<td>25.8</td>
<td>61</td>
</tr>
<tr>
<td>My child eats sugary snacks</td>
<td>0</td>
<td>0.0</td>
<td>9</td>
<td>4.2</td>
<td>76</td>
</tr>
<tr>
<td>We often eat together as a family, or I join mealtimes with my child</td>
<td>31</td>
<td>23.5</td>
<td>33</td>
<td>25.0</td>
<td>20</td>
</tr>
<tr>
<td>I add salt to my baby/child’s food</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
</tbody>
</table>

The results are shown in table 9.
Next participants were asked a series of questions around how they perceived the healthy eating information in the app and how it affected their experience of feeding their child. Response options were via a 5 point likert scale [strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. The number who somewhat agreed / strongly agreed with each statement is shown in Table 10.

Table 10: Perceptions of healthy eating information in the app showing strongly agree/ somewhat agree for each statement

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made me feel more knowledgeable about what a healthy diet looks like for my child</td>
<td>132</td>
<td>100</td>
</tr>
<tr>
<td>Helped with new ideas about how to make meals more varied</td>
<td>132</td>
<td>100</td>
</tr>
<tr>
<td>Helped me with new ideas about how to increase fruit and vegetables in my child’s diet</td>
<td>132</td>
<td>100</td>
</tr>
<tr>
<td>Helped me better understand how to reduce the unhealthier parts of my child’s diet such as sugar, salt and saturated fat</td>
<td>129</td>
<td>97.7</td>
</tr>
<tr>
<td>Helped me feel more confident giving my child the right sized portions of food for them</td>
<td>124</td>
<td>93.9</td>
</tr>
<tr>
<td>Helped me feel more confident in making mealtimes more enjoyable</td>
<td>127</td>
<td>96.2</td>
</tr>
<tr>
<td>Helped me understand how to support my child to try different foods</td>
<td>130</td>
<td>98.4</td>
</tr>
<tr>
<td>Helped me feel more confident in feeding my child a balanced diet</td>
<td>132</td>
<td>100</td>
</tr>
<tr>
<td>Helped me feel more skilled in planning and preparing healthy meals</td>
<td>125</td>
<td>94.6</td>
</tr>
</tbody>
</table>
Finally participants completed a series of questions around healthy eating behaviour considering whether ‘As a result of Ask Teddi’ they had changed their behaviour. Participants were given the response options of yes, no, and ‘I was already doing what was recommended’ to reflect positive behaviours before using the app. Findings are shown below in Table 11.

### Table 11: Healthy eating behaviours after using the Ask Teddi app

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>I was already doing what was recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Increased the amount of fibre your child eats each day</td>
<td>127</td>
<td>96.2</td>
<td>1</td>
</tr>
<tr>
<td>Tried to include a wider variety of foods groups each day in your child’s diet</td>
<td>125</td>
<td>94.7</td>
<td>1</td>
</tr>
<tr>
<td>Reduced the amount of sugar in your child’s diet</td>
<td>126</td>
<td>95.5</td>
<td>1</td>
</tr>
<tr>
<td>Changed the portion size of your child’s meals to better match their needs</td>
<td>106</td>
<td>80.9</td>
<td>3</td>
</tr>
<tr>
<td>Swapped to healthier snacks for my child</td>
<td>129</td>
<td>97.7</td>
<td>3</td>
</tr>
<tr>
<td>Reduced the amount of salt your child is eating</td>
<td>50</td>
<td>37.9</td>
<td>0</td>
</tr>
<tr>
<td>Experimented with new ways to increase fruit and vegetables in your child’s diet</td>
<td>131</td>
<td>99.2</td>
<td>0</td>
</tr>
<tr>
<td>Increased the number of meals you / your family eat with your child</td>
<td>82</td>
<td>63.1</td>
<td>20</td>
</tr>
</tbody>
</table>

In the open ended boxes asking participants to expand on their responses, many highlighted different ways in which the information supported them:

‘I like how culturally diverse it is in representation and recipes and responses.’ (Mother, 24, Pakistani, first time mother)

‘We’ve been eating healthier as a family because of the support and advice from teddi. The ideas are very practical which is handy.’ (Mother, 26, White, first time mother)
‘I didn’t really know that much about what food were processed and unhealthy and now because of the app I’m in a better position to make more healthy decisions for my family. It responds to my queries and comments on ethnic food which surprised me as there isn’t much help and guidance on my loc foods as others who are not in my culture don’t really know. The recipes also include some of the food we eat as a family. Also seeing different coloured faces in the home chapter screen makes you more welcomed and comfortable.’ (Mother, 27, White, first time mother)

‘I really like the ideas for making dinner more fun and how to encourage my son to try new healthy food.’ (Mother, 28, Indian, first time mother)

‘I don’t give my child salt anymore and also have cut back with cake and chocolate. Replaced with pineapple and watermelons. The recipe section is great and I also like how when I talk about how dinner can be stressful it has helpful advice back. (Mother, 28, Black, second time mother).

‘The ideas on making mealtimes more fun and connecting with the kids more has improved the overall quality of life for our family. I love the recipes too! . (Mother, 30, Mixed race, second time mother).’

5.5. Active play

The final topic in the app to be explored was the information regarding active play for children. One hundred and eighty participants completed the questions relating to active play. Of those participants, 56 (31.1%) had looked at the sections on healthy eating ‘lots’, 26 (14.4%) ‘some’, 27 (15.0%) ‘a little’ and 71 (39.4%) none. Again, only participants who had viewed lots, some or a little of the information completed items evaluating the apps active play information went on to respond to further questions (n = 109).

Reflecting on the app content, participants were asked how useful they found the information on active play. Overall, 70 (64.2%) found it ‘extremely useful’, 34 (31.1%) ‘very useful’, 5 (4.6%) ‘moderately useful. No participant rated it as ‘slightly’ or ‘not at all useful’.

Figure 4: Chart showing respondents’ rating of the information on active play

<table>
<thead>
<tr>
<th>Usefulness of information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely useful</td>
</tr>
<tr>
<td>Very useful</td>
</tr>
<tr>
<td>Moderately useful</td>
</tr>
<tr>
<td>Slightly useful</td>
</tr>
<tr>
<td>Not at all useful</td>
</tr>
</tbody>
</table>

Active play

---

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Depending on the developmental stage of the child, participants responded to different questions. Participants were asked whether their baby/child was walking confidently yet dependent on the response (yes/no) directed to a different set of questions.

5.5.1. For babies not yet walking

Only 14 participants completed this section – most likely because they had not considered reading about physical activity with a young baby. Participants were asked a series of questions around how frequently they engaged in different forms of active play with their baby. The frequencies are shown below in table 12.

### Table 12: Participants frequency of active play with their non walking baby

<table>
<thead>
<tr>
<th></th>
<th>Everyday</th>
<th>Most days</th>
<th>Sometimes</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>If your baby isn’t yet crawling, rolling over or moving around do they have at least 30 minutes of tummy time activity?</td>
<td>4</td>
<td>28.6</td>
<td>9</td>
<td>64.3</td>
<td>1</td>
</tr>
<tr>
<td>If your baby is mobile do they have opportunity to practice big movements such as reaching and grasping, pushing and pulling themselves around or rolling over?</td>
<td>1</td>
<td>7.1</td>
<td>3</td>
<td>21.4</td>
<td>6</td>
</tr>
<tr>
<td>Does your baby have opportunity to spend time on the floor playing with toys or household objects such as wooden spoons?</td>
<td>1</td>
<td>7.1</td>
<td>3</td>
<td>21.4</td>
<td>2</td>
</tr>
<tr>
<td>Do you, your partner or whoever is caring for them spend time with your baby engaged in activities such as playing games or with toys or other household objects?</td>
<td>8</td>
<td>57.1</td>
<td>4</td>
<td>28.6</td>
<td>2</td>
</tr>
<tr>
<td>Do you, your partner or whoever is caring for them spend time with your child reading or singing songs?</td>
<td>7</td>
<td>50.0</td>
<td>4</td>
<td>28.6</td>
<td>2</td>
</tr>
<tr>
<td>Do you, your partner or whoever is caring for them get outdoors with your baby to walk or play with them? Unless the weather is really wet, hot or cold.</td>
<td>3</td>
<td>21.4</td>
<td>4</td>
<td>28.6</td>
<td>6</td>
</tr>
</tbody>
</table>
Every day | Most days | Sometimes | Occasionally | Never
--- | --- | --- | --- | ---
How often does your baby have screen time such as looking at a tablet, phone or TV? | 0 | 0.0 | 0 | 0.0 | 14 | 100
Do you use sunscreen / cover their skin / avoid the sun if you are outside with your baby March – October? | 1 | 7.1 | 2 | 14.3 | 3 | 21.4 | 1 | 7.1 | 7 | 50.0
How often do you, your partner or whoever is caring for them do messy crafts or art with your baby? | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 14 | 100

Finally participants completed a series of questions around their knowledge and behaviour around physical activity since using the app. Participants were given the response options of yes, no, and ‘I was already doing what was recommended’ to reflect positive behaviours before using the app. Findings are shown below in table 13.

**Table 13: Active play behaviours after using the Ask Teddi app**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
<th>I was already doing what was recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>My child has more tummy time</td>
<td>14</td>
<td>100</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>I read or sing more to my child</td>
<td>14</td>
<td>100</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>I limit screen time for my child</td>
<td>2</td>
<td>14.2</td>
<td>0</td>
<td>0.0</td>
<td>12</td>
</tr>
<tr>
<td>I have increased my own activity</td>
<td>10</td>
<td>71.4</td>
<td>1</td>
<td>7.2</td>
<td>3</td>
</tr>
</tbody>
</table>

**5.5.2. For children walking**

Overall 95 participants responded to this section. First participants were asked ‘How often do you think your child is involved in active play every day? This can include exercise such as walking, dancing or swimming but can also include things like messy play, running around playing games or playing actively with toys such as building or role play. It could also include joining in household tasks such as gardening or cleaning’.

Overall 24 participants (25.3%) stated more than three hours per day, 47 (49.5%) around three hours per day, 21 (22.1%) around two hours per day, and 3 (3.2%) around one hour per day.
Next participants were asked a series of questions around how frequently they engaged in different forms of active play with their child. The frequencies are shown below in table 14.

**Table 14: Participants’ frequency of active play with their child**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Every day</th>
<th>Most days</th>
<th>Sometimes</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you, your partner or whoever is caring for them spend time with your child reading or singing songs?</td>
<td>30 31.9%</td>
<td>22 23.4%</td>
<td>39 41.5%</td>
<td>3 3.2%</td>
<td>0 0.0%</td>
</tr>
<tr>
<td>Do you, your partner or whoever is caring for them get outdoors with your child to walk or play with them? Unless the weather is really wet, hot or too cold.</td>
<td>25 26.3%</td>
<td>24 25.3%</td>
<td>37 38.9%</td>
<td>9 9.5%</td>
<td>0 0.0%</td>
</tr>
<tr>
<td>How often does your child have screen time such as looking at a tablet, phone or TV?</td>
<td>10 10.5%</td>
<td>53 55.8%</td>
<td>24 25.3%</td>
<td>8 8.4%</td>
<td>0 0.0%</td>
</tr>
<tr>
<td>Do you use sunscreen / cover their skin / avoid the sun if you are outside with your child March – October?</td>
<td>10 10.5%</td>
<td>13 13.7%</td>
<td>34 35.8%</td>
<td>28 29.5%</td>
<td>10 10.5%</td>
</tr>
<tr>
<td>How often do you, your partner or whoever is caring for them do messy crafts or art with your child?</td>
<td>20 21.1%</td>
<td>36 37.9%</td>
<td>33 34.7%</td>
<td>6 6.3%</td>
<td>14 100%</td>
</tr>
</tbody>
</table>

Participants were then asked a series of questions around how physically active their child was. Thinking about those who did activities everyday or most days 88 children (92.6%) did exercise that got them out of breath daily or most days, 82 children (86.3%) exercise such as running jumping, hopping and galloping, 75 (78.9%) balance activities such as riding a bike, and 87 (91.6%) activities that involve kicking or throwing a ball.
Finally participants completed a series of questions around their knowledge and behaviour around physical activity since using the app. Participants were given the response options of yes, no, and ‘I was already doing what was recommended’ to reflect positive behaviours before using the app. Findings are shown below in table 15.

Table 15: Active play behaviours after using the Ask Teddi app

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>I was already doing what was recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>My child does more active play each day</td>
<td>95</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>My child plays outside more</td>
<td>87</td>
<td>91.6</td>
<td>1</td>
</tr>
<tr>
<td>I spend more time on the floor with my child</td>
<td>77</td>
<td>81.1</td>
<td>7</td>
</tr>
<tr>
<td>I read or sing more to my child</td>
<td>60</td>
<td>71.9</td>
<td>8</td>
</tr>
<tr>
<td>I limit screen time for my child</td>
<td>65</td>
<td>67.7</td>
<td>10</td>
</tr>
<tr>
<td>I have increased my own activity</td>
<td>89</td>
<td>92.7</td>
<td>2</td>
</tr>
</tbody>
</table>

Finally all participants were asked a series of questions about the impact of the active play information upon their knowledge, behaviours and own activity. One hundred and three parents responded to these questions. Response options were via a 5 point likert scale [strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. The number who somewhat agreed / strongly agreed with each statement is shown in Table 16.

Table 16: Perceptions of active play information in the app showing strongly agree/ somewhat agree for each statement

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I better understand the importance of active play</td>
<td>102</td>
<td>99.0</td>
</tr>
<tr>
<td>I feel more knowledgeable about how to get my child active</td>
<td>101</td>
<td>98.0</td>
</tr>
<tr>
<td>I feel more confident encouraging my child to be active</td>
<td>112</td>
<td>99.1</td>
</tr>
<tr>
<td>I feel more skilled in ways to get activity into my child’s day</td>
<td>91</td>
<td>88.3</td>
</tr>
<tr>
<td>I better understand the importance of being active myself</td>
<td>98</td>
<td>95.1</td>
</tr>
<tr>
<td>I better understand that toys, game or activities don’t need to be expensive to help my child</td>
<td>86</td>
<td>81.9</td>
</tr>
<tr>
<td>I understand the importance of limiting screen time for my child</td>
<td>82</td>
<td>79.6</td>
</tr>
</tbody>
</table>
5.6. Overall perceptions of the Ask Teddi App

At the end of the questionnaire all participants completed a series of statements regarding their perceptions of the Ask Teddi app. Response options were via a 5 point likert scale [strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. The number who somewhat agreed / strongly agreed with each statement is shown in Table 17. Two hundred and eleven participants completed this section.

Table 17: Overall perceptions of Ask Teddi app showing strongly agree/ somewhat agree for each statement

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will carry on using Ask Teddi as my baby/ child grows</td>
<td>210</td>
<td>99.5</td>
</tr>
<tr>
<td>Ask Teddi presents information in a non-judgemental way</td>
<td>215</td>
<td>100</td>
</tr>
<tr>
<td>I trust the information in Ask Teddi</td>
<td>214</td>
<td>99.5</td>
</tr>
<tr>
<td>Ask Teddi is easy to use</td>
<td>215</td>
<td>100</td>
</tr>
<tr>
<td>Ask Teddi is informative</td>
<td>215</td>
<td>100</td>
</tr>
<tr>
<td>Ask Teddi made me feel more knowledgeable caring for my child</td>
<td>215</td>
<td>100</td>
</tr>
<tr>
<td>Ask Teddi made me feel more confident in caring for my child</td>
<td>215</td>
<td>100</td>
</tr>
<tr>
<td>Ask Teddi made me feel more supported in caring for my child</td>
<td>215</td>
<td>100</td>
</tr>
<tr>
<td>I would recommend Ask Teddi to friends</td>
<td>215</td>
<td>100</td>
</tr>
</tbody>
</table>

5.7. Suggested improvements to the Ask Teddi App

As a final question participants were invited to comment on any changes they would like to see made to the Ask Teddi App. Recommendations were split into four main themes:

- **More information on different topics:**
  
  ‘Help on cutting child nails.’
  
  ‘It is very kind which is nice. It would be good if there were some help on when children have little bumps/bruises and what to do or when you need to go see a doctor.’
  
  ‘A section for children with disabilities for my 4 year old who has autism’
  ‘Something around behaviour or tantrums would be good like how to control that’
  ‘More on the sustainably or emotional wellbeing topics about how to help your child to be ethical and learn about ethics.’
• **Practical app features:**
  ‘A search bar on each FAQ section would help.’
  ‘More videos in more languages.’

• **Content for children:**
  ‘Content aimed at my child as he is 5 and goes on YouTube so something that was educational or interesting for him.’
  ‘Would love for the animations to be entertaining for a 4 year old too so we could watch together.’

• **Option to connect to others:**
  ‘Able to speak with parents and nurses on the app.’
  ‘Would be good to see what other mums or parents are going through / their advice too.’
  ‘To understand how other mums who are breastfeeding are getting on as I found it really hard and draining and Teddi has lots of support for me but it would also be nice to understand how other mums have coped.’
6. Qualitative findings from parents

Recruiting parents to take part in one to one interviews was challenging resulting in just three being interviewed in total, with five children aged between three and seven. Given the depth of responses across other areas of the evaluation this small number is largely mitigated, but themes emerging from the parent interviews should be treated with caution.

6.1 Sources of information about child health

One parent, who was from India, found it very hard to know who to ask for information about their child’s health or childhood illnesses, apart from family or the internet where there is “too much” information.

Another parent said that they look for information online or ask their parents as a first option, but if necessary they will book an appointment with their nurse.

“Online, friends, family, my nurse. Teddi is always there though, which I appreciate. And I feel the information is more trustworthy rather than the old tips and tricks from other family members.”

The third parent was not sure since there was so much information available from different sources.

6.2 Hearing about the Ask Teddi app

One parent could not remember where they had heard about Teddi. Two of the parents had first heard about the app on Facebook, one of whom had been told about it by a friend.

“My friend told me on Facebook. I think she saw this download and tried so I did, and I miss family and my mum and my family and I said okay I will definitely try. So for my four-year-old. It's zero to five but honestly I wish this was before my children were younger. It would have been very helpful.”

One parent said that they use the app almost every day.

6.3 Feedback on the Ask Teddi app

All three parents were positive about the design of the Ask Teddi app, and liked its overall look, colourfulness, and the cartoons/pictures. Two parents appreciated the humour.
“And it's very good. It's very funny. Some things are so funny it makes you smile. Yeah it was a hundred percent I would say. Very nice on that because it's not giving you like answers on just like robot answer but it's funny. It's nice.”

“I also like how there are different ethnicities on the home screen. It makes it feel more inviting and inclusive. Teddi is also really funny. I think at the start it said something about my name, which was really sweet and funny.”

Two parents liked that the app is easy to use and navigate. One specifically liked that they can both ask it questions and also just read the information.

All three parents appreciated the content on Ask Teddi, especially since Covid and lockdowns when it has been more difficult to ask people things face to face. One said that the app was very helpful as they could look for information on it at any time. Two also said that they found the content reassuring and were learning from it.

“There's loads of information and I don't think I've ever seen such information, help, advice altogether on one app before. That's something that's really good.”

“At the start, I only went on the app to ask a question. But I found I was learning stuff just by chatting and going through the FAQ section. Like, for example, the advice on how to help my child feel more valued. I feel that is so important, especially in this day and age where it seems like lots of people have anxiety and security issues. I've known friends like that and I've always just wanted to have my child to be confident.”

One parent highlighted that the app was non-judgemental.

“The app don’t judge you either you know? I said what we do and it just gave tips and advice back. It wasn’t like oh you’re wrong, you’re no good. It was very helpful.”

All of the parents said that they trust the information on the app, with one saying that they trust something developed by the council more than something developed by a private company. Two wished that it had been available when their children were younger.

“Having seen the information on the app, I would have loved it if it was out sooner when I was a young mum, who was very nervous... I used to struggle with breast feeding, to have support around me. Something like the app with the support and videos there would have been nice.”

One parent specifically mentioned that the Emotional Wellbeing One and Two sections were particularly helpful as this kind of advice is not available anywhere else, even on the NHS website.

“The softer things around confidence and sorting out tantrums are so useful to get help on. Usually, in the mornings when my daughter is having breakfast, I'll be on the app just reinforcing the help. It's reassuring, certainly.”
Another highlighted the colourful play ideas on the app as being very good and something that works and: “one way to get more vegetables and good stuff down your kids.”

One parent valued the information on food and exercise for the whole family, saying that the activities had brought them closer together.

“*We’re all much healthier now and feel happier too. We do more exercise as a family and eat better. We take care of our emotional life much better. I think that helps with our child too.*”

One parent said that the information on oral health had really helped them with their four year old, as had the section on fussy eating and the recipes. Being able to explain why they are doing something - that it is to be healthier – and show what the app says is very useful.

“*He’s a very fussy eater my younger one. So fussy eating was a very useful one. Recipes were good because I showed him, I told him ‘look, it is on the app, let’s try make it like that.’*”

“I don’t know how unhealthy we were before this, like brushing teeth for example. When I was growing up it was normal to brush your teeth in the morning for a minute, but that’s it. But I’ve seen on the app, it should be twice a day for two minutes. I got this light-up toothbrush that goes for two minutes. Initially both my boys were like this is so long, why do we need to brush so much for so long? So I tell them it’s for your own good. Do you want your teeth falling out?”

### 6.4 Impact on parents

All three parents said that the app has helped them to feel more confident as a parent, and reassured that they are doing the right things.

“*Going through and chatting on the app certainly made me feel more confident as a parent. Especially, it can make me feel like a much better parent.*”

“No mother is born with a book and sometimes as mothers we always worry. *What is right? What is the right decision? When you go on the internet and listen to other grandmothers or mothers-in-law they all have their ideas. Sometimes you’re looking for what can I do? What is right?*... This was good to kind of like look at a roadmap. It gives you a roadmap to say that, yes I am doing good. I’m in the right, confident.”

“There’s more confidence in the family to be healthy. And ultimately happier, you know? Like I said, I don’t think there’s anything like this really out there in terms of how much support is given. I do feel very supported.”
Two parents, when asked, felt that as a result of using the app they see healthcare professionals less than previously as the app reassures them that they are doing the right things.

“Before the worry of getting it right was my anxiety.”

“I still see my nurse, but not as often as before. I think it was just about reassuring and things, but now I can look on the app… I don’t see a nurse often anymore, but I know she’s always there. I like getting reassurance and answers from the app. I also know I can ask as much as I like, whenever I like.”

The third parent said that the app did not make any difference to whether or not they are likely to talk to a healthcare professional as their children have been healthy and they have not needed to do so.

Two of the parents said they would carry on using the Ask Teddi app as their child gets older.

6.5 Suggested improvements

One parent suggested that the app should have information for older children also, up to the age of ten.

“For my seven-year-old I knew nothing. And I think that it should be there should be something like till the age of 10. Growing really doesn't stop.”

Two parents suggested that being able to connect with other mothers and chat to them via the app would be useful. One said they currently use an app called Mush³ but felt that this is not as easy to use as Teddi and does not provide nearly as much help.

“But it does allow you to connect with other mums and I really like that. There’s just something good about talking to a mum who’s been in your position before. It also makes you feel less lonely. I think if we could meet or at least chat to other mums in the app it would make it a lot better.”

Another parent felt that it would be useful to have activities on the app for their children to do that promote healthy lifestyles.

“I get it’s for me the mum, or parent, but my six-year-old, he’s at the age where he knows how to use YouTube. It would be good if there was some activity, and something that he could do or watch on the app. The way he can influence his younger brother and all together we can be healthier.”

One parents said that they would like to be able to ask a question of a nurse on the app, and for them to reply when they can.

³The Mush app allows mums to find friends who live nearby with children the same age, arrange meetups, get advice from parenting experts and fellow mums on the topics keeping them awake at night and join chat groups based on everything from their due date to their love of reality TV.
6.6 Feedback via the app pop up questions

Just over 120 parents provided a comment on the app through its pop up feedback questionnaire. Many of the comments reflected the interviews with parents.

Around a quarter of the parents made a positive comment, saying that the app is good or great/brilliant.

“Overall really lovely and beautiful design and ideas.”

“Very colourful and friendly thank you.”

15 parents said that the app is helpful and 14 said that it had good information or ideas/tips, with one parent saying that the frequently asked questions are good. Another 7 parents said that the videos are good.

“It is so friendly and gives good ideas. This is really cool.”

“I've been asking my health visitor about immunisations I'm really glad Teddi gives such clear information on it... life saver!!”

“Very reassuring it has helped yes thanks.”

“Really like the videos, more would be great please, thanks.”

12 parents said that the Ask Teddi app is making a difference to them.

“Doing a lot better than before and this app helps a ton.”

“Been making me feel so much more peaceful and happy lately. I like the non judgmental reminders.”

"Thanks for helping me cope better.”

“This is the first time I have been impressed by what the council has done. Usually it is crap stuff but this is very smart and has helped my family and extended family a lot. Credit where it is due.”

14 parents mentioned that they are trying out the ideas and suggestions on the app.

“Interesting I am trying to do this but it’s not always easy. I like what Teddi is saying about it and it’s true indeed.”

“I like the breastfeeding videos and baby video. Teddi is informative and kind too. I'm glad to know others find it hard the advice on positioning is helpful I have been trying that.”
“Yes my child is very annoying when it comes to meal times and the idea that my child can reject food up to 10 times before liking it is really encouraging, I will keep trying.”

“Yes good I am trying the bed time routine Teddi has suggested.”

“I liked the tips on how to brush your child’s teeth it has been hard.”

“My child had been putting on weight and using this app and the ideas from here have helped us as a family be more healthy and get to a healthy weight.”

“We used to make sure our child finishes their food and would not let them get up before they did but it was making dinner worse and we have now stopped doing that.”

“It sounds good in theory lots of this but it is so hard to do like we are trying but I guess like teddy says you have to keep going but it is hard and I don't always feel like I'm doing well.”

4 parents did not like the pop up chat box appearing so often.

“Lots of info. But please stop asking if Teddi is helpful every 5 minutes. I’m trying to read.”

“Please stop making this pop up every 2 minutes.”

8 parents made a specific point about the app.

“I was looking for teething gel in Asda, thank you for saying to me I have to go to my pharmacy.”

“Been making me feel so much more peaceful and happy lately. I like the non-judgmental reminders.”

“This is brilliant I’m so glad there’s a topic like this here. Not enough attention gets paid to parents’ mental health.”

“I think that this is so wonderful that there is help with mental health as there is not enough help for this especially with new mums I find. Teddi gets it and by that I mean it gets it is not always easy and talking to someone or something lol that gets it is nice x.”

“I like that it tells you why breastfeeding is good but still helps you with formula.”

“Nice that it gives help on different ages.”

“Interesting that different activities are important for different things I thought it was just about being active but I guess it is important to do different activities too.”

“I like just going through the FAQs more than chatting.”
“Better than other apps like baby buddy and NHS and crawling as it has all the information you need without bugging you with sign ups or other stuff that you don’t need. Easy to use.”

There were a number of suggestions made about possible improvements to the app:
- Being able to talk to other parents through the app (3 people).
- Providing information on older children.
- Having the ability to search the FAQs.
- Whether the app could also handle red books.
- In the dental hygiene section there are two identical questions with different answers: the questions should be changed to something more fitting.
- When clicking back from the information, the app takes you to the top instead of where the user previously was, which “is a little annoying”.
7. Qualitative findings from professionals

7.1 Findings from second focus groups

Two focus groups were held in November 2021: one comprised six health visitors and the other comprised three PASS/children’s centre staff.

7.2 What works well?

Professionals in both groups said that the Ask Teddi app is easily accessible for parents, visually appealing, bright and colorful, with the pictures being effective in relating to the different sections. Similar comments were made during the first focus groups.

“I think it’s bright and colorful so when you look at it, it’s easy to follow, as in which section you go on.” (health visitor)

“It’s very much like a video game kind of look. And I think that the kind of parents that we’re working with, and especially the young parents, I think they quite like that. It’s visually pretty, it’s interactive.” (PASS/children’s centre staff)

The PASS and children’s centre staff felt that the app is easy to navigate around and find information quickly, especially for the younger parents who are familiar with using apps. The health visitors said that it is diverse with a lot of links, and that the frequently asked questions are good and well resourced.

Both groups said that the amount of information available on the app is very good.

“I found it really useful and there’s lots of available information there, so I did find that good.” (PASS/children’s centre staff)

They also felt that the information is good, easy to understand and relevant to parents, with one health visitor saying that the frequently asked questions are the ones that parents do ask them.

“The information is good. It’s easy. It’s easy to understand, it’s easy to read, it’s engaging, so it’s interesting. You start reading and you feel like you want to read more. It’s not boring, it’s not – sometimes you can start reading something and think, ‘oh, can’t be bothered with that’ – that the information isn’t actually like that on there, it’s quite interesting if it’s something that you’re interested in. So if you want to know about potty-training, the information is interesting and it’s good to read.” (PASS/children’s centre staff)

“I think [parents] will find it really useful because it’s questions that they ask us already so I think they’ll find it useful.” (health visitors)

The information on healthy eating and fussy eating, were specifically mentioned as very useful sections.
All of the health visitors said that the information on the app is the same as the information that they would give to parents.

“I worked for health before for 20 years, so there’s not been any information that I’ve looked on there that I’ve thought, ‘oh that’s not following the guidelines’ or stuff like that. So I, yeah, I feel it’s all followed what information is being given out by health and other professionals.” (health visitor)

Both groups highlighted that the fact that having the same information on the app as that being given out by health professionals is important and reassuring both for parents and themselves. This reflects feedback from the first focus groups.

“And also sometimes some parents want clarification, so you’re giving them the right information, so you’ve actually got this, and they can, ‘look, this is what it, this is what you should be doing’ or ‘this is what it suggests,’ and it’s no sort of like… Cause some parents get frustrated because they get told one thing by someone else, one thing you know, and they don’t know, but they’ve got the information there.” (PASS/children’s centre staff)

“It’s consistent information and it’s a good way of, when parents say, ‘oh so-and-so said this,’ it’s a good way of saying, ‘well actually, if you go on here and if you have a read of this, this is the information, this is what professionals are saying, this is what you should be following.’ Because often it’s, with the families that we work with, a lot of it comes from hearsay from other parents – ‘oh so-and-so said I should do this.’ Well actually, what you should be doing is following professional advice listening to them first and foremost… So for us as outreach workers it’s a way of, instead, of saying, ‘okay, well you need to contact your health visitor to get this information,’ it’s a quicker route into providing that information.” (health visitor)

They also felt that the app is a good backup and resource for parents to use if they cannot talk to a health professional, or to look at in more detail following a health visit.

“I think it’s good that if parents have got a problem they can go straight to it if they can’t get hold of a health visitor or a health professional.” (health visitor)

“That is really good that it is easily accessible and it’s always available at any time for parents. And I do think sometimes when they have either had the health visit or whoever, like professionals, and they’re told something, when they’ve then got family in their ear, they’d say, ‘oh no, it’s not like that.’ At least they can go away and have a look on that app. They haven’t then got to wait for the next appointment with their health visit or the next time they attend a group. It is there for them to check that.” (health visitor)

However, the health visitor did point out that the app is somewhat misleading as it says that: ‘you can go to your health clinic and see your health visitor, don’t worry about it if it’s not time to get your baby weighed’. However, this is not currently possible in Thurrock as parents have to phone for an appointment and cannot just turn up.

“There’s not always an administrator there, so I think that’s a bit misleading. I don’t know about other areas but in Thurrock they can’t just turn up and see a health
visitor. They can call and speak to a health visitor; they can’t just turn up and see one. I would hate for people to read that and think ‘right I’m going to go down there and speak to someone’. “(health visitor)

There were slightly mixed views about the app asking parents questions such as: ‘how are you today?’ One of the PASS/children’s centre staff felt that this was probably frustrating for some families, but that other families, especially if they are isolated or vulnerable, would find this really useful.

“If they’re isolated and vulnerable and then all of a sudden this pops up, someone’s interested in how I feel today, so I think it is really good for them families.” (PASS/children’s centre staff)

However, another found it annoying, especially if this is in the middle of the night.

“It’s at the most weirdest times, like sometimes it will do it in the middle of the night. It will just ping up, ‘how are you feeling?’” (PASS/children’s centre staff)

The health visitor group generally felt that many parents would not want to go through a conversation with Teddi before they can get to the questions.

“I think the issue I have is every time I click on something you have to go through Teddi first. The whole ‘welcome to the chapter’, ‘how do you feel about this?’, ‘how do you feel about breastfeeding?’. You can’t just look and read some information, you’ve got to engage in a conversation first. I don’t think necessary people want to do that or have the time.” (health visitor)

“A lot of the time, you’re time pressed. If you just want to have a quick look to see if you could spot anything or while you’re feeding and just having a read or whatever; to have to hold a baby in one hand and type ‘oh yeah I feel great about breastfeeding’ with the other hand might not be very practical as well. It’s just being able to separate being able to read or engage if you want to engage in a conversation with a robot.” (health visitor)

“I think parents just want a short sweet, to the point, done. Personally, I as mum, probably wouldn’t want to be having a chat because I’ve got a thousand and one other things to do.” (health visitor)
7.3 What is not working well?

Some participants in both focus groups mentioned that they were still having some difficulty using the app and that some parents have found navigating around the app has been difficult.

“I think it depends on people’s skills at using their phones and that. So I have had some that say navigating around the app, they found it quite difficult, and others have found it really easy and using it all the time.” (PASS/children’s centre staff)

“When you go on there it’s not quite clear that you can just ask a question straight away. Things that are simple. People trying to look for stuff to find it does become frustrating and you just put it down.” (health visitor)

“The answer might be there but actually I couldn’t find those FAQ’s. Even though it says it’s right at the bottom, when you click on it there’s quite a few questions aren’t there?” (health visitor)

One health visitor said that they still often get the message that: “Teddi has gone for a quick cup of tea.” This had happened on the morning of the focus group.

One health visitor said that every time they try and use it they have either been logged out so they have to re-submit their password and can’t remember it, or they have to start all the way back from the beginning again with things they are interested in etc.

“I don’t seem to be able to go straight into it and use it, it’s always a bit of a palaver at the start.” (health visitor)

Several of the health visitors said they sometimes had problems in receiving an answer to their questions, which they have found frustrating.

“I’ve tried to ask it a question, but it wouldn’t necessarily answer my question. I asked the same question three times and then on the third attempt it answered my question. It was like it wanted a conversation before it would let you answer a question kind of thing. That was a bit confusing at first.” (health visitor)

A specific example of a question (that is a “big” question for parents) that Teddi did not recognise was: ‘my baby hasn’t emptied its bowels for four days, is this a problem?’

Another example given was that the response to: ‘my baby isn’t feeding’ was, ‘so your baby is enjoying it’s feed’.

Participants in both groups said that potential users were still being asked to pay £4.99 to download it. This seemed to be when the location of potential users was blocked, but professionals felt that this was likely to be a barrier for parents.

“My colleague tried to download it yesterday and was trying to use it as a parent because she is a parent, and it said pay £4.99 to actually ask a question.” (health visitor)
One participant in the PASS/children’s centre group said that some parents are still having difficulty in accessing the app, so they have been advising them to delete it from their phones and put it back on: this appears to be successful.

The health visitor group did not like one item in the emotional wellbeing section, where there is a question: ‘can we change whether we are a cup half full or half empty person?’ They felt that this is not appropriate from a mental health perspective because it is categorizing people by asking them if they are pessimistic and negative.

“I personally wouldn’t use that, ‘are you a cup half full or half empty’, I wouldn’t use that on an emotional wellbeing home visit. I think as well because for some mums, obviously post-natal depression wise, it’s almost highlighting well maybe I’m just a negative person. Is that diminishing how they’re feeling? Or also, for some neurodiverse parents, and there will be a lot, they will view things differently anyway so that wouldn’t be a useful analogy in the first place because if you take something literally then it makes no sense as well. So being asked if your cup’s half full or half empty makes no sense to some people. It’s a concept rather than an actual thing. (health visitor)

One health visitor said that they did not like the teddy image, but this seemed to be a personal view not shared by the others.

7.4 Suggestions for improvement

Participants in both groups suggested that if potential users are asked to pay £4.99 to download the app, the message should make it clear that it is free to users in Thurrock if they allow the app to access their location.

“I don’t know if you have to allow your location for them to pick it up. That might confuse people then if they’re… they’ll see that and think ‘oh my god I’m not paying twenty pounds a month’ and quit completely out, not realizing you have to enable your phone settings for your location services. Maybe some sort of explanation needs to be around that at the start rather than just the pop-up box which says, ‘subscribe now for £4.99 a week’.” (health visitor)

The health visitors suggested that including the contact number for the Thurrock health visitor duty line/single point of access would be very helpful, although it would need to be clear that this number is just for Thurrock and the health visiting service.

“We do have administrators in most clinics but if they’re not there for any reason, a parent could come all the way to a clinic and not see anyone because they couldn’t find anyone.”

There were mixed views about being able to contact the duty line with a message via the app. Some health visitors said that they promote the phone number as parents are usually able to speak to a health visitor straight away, or someone will contact them back, which is probably more reassuring for them than seeing information on an app.
However, others felt that there are some parents who are anxious about phoning or cannot talk on the phone and who might prefer to send a message.

“When you’re talking to someone, I think you probably feel a bit more reassured rather than just an app saying, giving you advice, saying that’s okay or whatever.” (health visitor)

“There’s some parents that can’t talk on the phone or feel anxious about making a phone call so I suppose for those parents if we can make it a bit easier that they can search for a question that they want… I prefer to speak to someone because then I can ask them questions but some people wouldn’t, they’d rather do it over a message.” (health visitor)

However, the duty team may not have the resources to respond to messages/texts as well as phone calls and they do not currently have a text messaging service.

“It might be nice to have a few messages rather than their calls, the poor health visitors are getting inundated on their duty day. (health visitor)

The PASS/children’s centre group suggested that signposting to local services - such as children’s centres or the Parent Advisory Team Thurrock (PATT) - would be very useful. The app should also signpost to the ‘Ask Thurrock’ Young People & Families Directory with a list of the wider range of services available.

The PASS/children’s centre staff suggested including on the app a link to the children’s centre timetables in the local area so that parents can access these in one place. Currently, timetables are publicized through paper leaflets or the Thurrock council website which is not always easy to navigate or the most obvious place to look.

Both groups felt that it would be very helpful if the Teddi app could signpost to the further and more detailed information available on some of the more specialist apps like Breastfeeding Hub, First Steps or SNAP.

“Teddi’s an all-round app. Teddi’s got a lot of information about different things... So for instance, the Contact and the SNAP charities, that’s around children with special needs so it wouldn’t necessarily be the kind of information that you’d want on the Teddi app. So it just really, it links to whatever the work you’re doing, whatever’s the right place is where you would go.” (PASS/children’s centre staff)

Several of the health visitors felt that the questions on toilet training was in the wrong place and that it would be useful to have it as a completely separate category.

“That is one of the major things we support with, particularly at the two-year checks. So to have to scroll right to the bottom of that socialization section is quite confusing because it is at the bottom of that rather than the top.” (health visitor)
Several of the participants were not sure how to ask Teddi a question and where this option was, so had only accessed the frequently asked questions. They felt that one option might be to have some form of glossary or section with all of the links in one place that parents could then click on to access, or a search bar (like Google).

*Having maybe a section with the useful links in one place so rather than having to find your links in one… so going to breastfeeding and finding the breastfeeding link then you’ve got to go into toilet training to look for a toilet training thing.* (health visitor)

Two health visitors suggested that having the option of different languages on Ask Teddi, or signposting to information in another language, would be useful as Thurrock is quite a diverse area in terms of English as a second language.

*“Obviously, you can’t cover all languages but even a guidance to find the information in their own language might be useful.”* (health visitor)

### 7.5 Promoting the app to parents

All of the participants in both focus groups said that they regularly promote the Ask Teddi app to parents. This contrasts with the first focus groups where participants were not confident about the app. The health visitors promote it during all of their contacts at six weeks or two year developmental checkups. They do not tend to use it themselves, but do promote it to parents.

*I talk about it, I say to parents it’s a really good app we’re promoting.*” (health visitor)

*I promote it at all the contacts, but I haven’t really used it myself. I went on it briefly yesterday and this morning just so I could see really what it’s about. I haven’t really used it myself, I just promote it more than anything.*” (health visitor)

*I am promoting it in each of the sessions, but it’s for the families to use, it’s for me to promote, if that makes sense.*” (PASS/children’s centre staff)

One health visitor highlighted that it’s important to show parents what the app looks like visually as they may be hesitant about downloading the wrong thing.

The PASS/children’s centre staff promote the app to parents attending the Brighter Future groups, to parents attending universal groups (such as baby massage) and also during visits to parents. Many parents have already been told about the app by health visitors.

*“Many times now they are already aware of the Teddi app, so, which is really good to hear, when at the beginning I was sharing that information, but lots of them are aware of the Teddi app.”* (PASS/children’s centre staff)
The PASS/children’s centre staff have flyers/posters up in the children’s centres, while health visitors include a leaflet about Teddi in the new baby packs and promote Ask Teddi via the health visiting Facebook page.

“A lot of mums do have Facebook so anything we want to get across we tend to post on there with links and things. So Ask Teddi has been one of the things we’ve posted on there, with the link to sign up. All the information we want to get across goes onto that Facebook page.” (health visitor)

The elements of Ask Teddi that PASS/children’s centre staff promote to parents depend on what parents or families have been referred for. Staff can use the app to give families initial information straight away while they wait to see a health visitor, whereas previously they would have had to clarify the information before going back to the parents.

“I link it to whatever I’m doing with that particular family. So it’s been a mixture really, a bit of the potty-training, a bit of the feeding, healthy eating, just a mixture really. I tend to link it to whatever I’m doing with the family, but it is a good way of getting that initial information across quite quickly. And then what I tend to do is, because sometimes to get a health visiting appointment for a family can take some time, the health visitors are busy, so I always ask them to follow up with the health visitor. But it’s just a good way of having that information there, here and now, ‘look, this is what’s being said, this is what we should be doing, but obviously have a discussion with the health visitor or the professional that you need to discuss with.’ But it’s the here and now, so you’ve got it, it’s there. That’s what I like about it. Sometimes you’re asked questions and you want to be giving out the right information straight away. So rather than say – in the past you might have had to say, ‘well, I need to go back to the health visitor and just clarify that’ or ‘I need to get that information and come back to you about that’ – actually a lot of it you can just go on that app and say, ‘look, this is here, this is really good, have a look at this.’ (PASS/children’s centre staff)

The only two barriers identified for parents using the app were if they have to pay a subscription, and just having the opportunity/finding the time to download it.

The PASS/children’s centre staff suggested that the parents who decide not to use the Ask Teddi app, even with regular promoting of the app to them, are generally the families that do not engage well with their service and work. They felt that the families that really want the support will go ahead and download it.

“They’re generally the same families that actually don’t follow through with your work either. You always get families that engage really well, or families that don’t engage greatly and they would tend to be the families that are not great in engaging in the work that you’re doing.” (PASS/children’s centre staff)

7.5.1 Other websites or apps recommended to parents

Health visitors and PASS/children’s centre staff mentioned a range of other apps and websites that they recommend to parents. These were all for a specific topic such as breastfeeding or nutrition.
“Since Teddi came out I’ve just been signposting to Teddi. I haven’t been mentioning the others as much. But it depends because if I had a parent that came to me mentioning they were having difficulties in a specific area, maybe the development or wanting to know more about development, then maybe I would signpost them to Born to Move but I have been more signposting to Teddi more than anything.” (health visitor)

“To be honest if it was breastfeeding I would go to the Breastfeeding Hub app because it is specifically for that. When we’ve done the BFI they talked about the Breastfeeding Hub. I think it goes into so much more detail. Like [name] said, if you looking to someone to see if they’re latching or anything like that, it shows you videos, it shows you pictures as you go along, it’s detailed quite well as you go along.” (health visitor)

Those mentioned included:
- First Steps Nutrition (website providing resources to support eating well from pre-conception to five years).
- Lullaby Trust (website providing expert advice on safer sleep for babies) and its Baby Check app.
- Born to Move app from Kent Community Health Trust (encouraging play and interaction to help the learning and development of a baby’s brain).
- Breastfeeding Hub app (providing information and guidance on breastfeeding, including an interactive map that pins places that have been reviewed by other breastfeeding mums).
- ERIC (website providing potty training information and tips).
- The Baby Friendly Initiative by Unicef (website providing information and advice on a range of issues around caring for babies and families).
- SNAP (website providing advice and support for families with children and young people who have any special need or disability, including a directory of services).

### 7.6 Working with parents

The participants in the PASS/children’s centre group said that having the Ask Teddi app makes them more efficient as they can answer questions during visits immediately.

“It’s information right there, so good information, right in front of your face that you can actually go to straight away, so it just makes your work more efficient. So you could be at a visit and they’ll ask you a question and you could literally just pull that out and, ‘yeah, let’s, we can look at this.’ So it’s there straight away as opposed to you having sometimes to say, ‘well I’ll need to go and find out about that’ or ‘you need to contact your health visitor’ or whatever you need to do to go forward.” (PASS/children’s centre staff)
Children’s centres have a folder of information and leaflets that they can refer to, which comprise the apps and the websites that they trust. The Ask Teddi app is seen as another tool for them to use and to make them more efficient.

“It’s like really, it’s like another tool for their job role isn’t it? It’s like all these tools that you’ve got, it’s all going to be helpful, and as [name] says, makes you more efficient and it’s just like gathering tools in your toolbox.” (PASS/children’s centre staff)

The health visitors did not feel that the Ask Teddi app has changed how they are working with parents. However, they felt that having an app is: “moving with the times rather than giving out paper and things like that”. Some said that they probably give out fewer leaflets now as they are able to signpost parents to the app after showing them what it looks like (this was not the case for those undertaking new birth visits where there is a pack of leaflets given out to parents).

“We tend to signpost at development checks... But I don’t tend to give those leaflets out, I signpost them. If you think they really are interested and they’re not going to be able to download it or look at it then I will get them a leaflet but mostly I signpost them as we’re paper light.” (health visitor)

“I’ll show them it on my phone so they can see what it looks like, and quickly flick through it to show sections and stuff. Sometimes you can say it but you’re not retaining information necessarily, and a leaflet you don’t necessarily look at. So I’ll say ‘this is the app, look’ and quickly show them the categories and stuff and that seems to work so maybe that’s a slight change to our work.” (health visitor)

7.7 Impact on parents

The PASS/children’s centre group felt that the Ask Teddi app is a positive element for supporting families to improve their knowledge or confidence in parenting. However, improvements could not be ascribed purely to Teddi but to a combination of information sources and the work they are doing with families.

“It’s a mixture of using the Teddi app as well as the other information and the other pieces of work that you’re doing with the family. But it just helps tighten your work. You’ve got more evidence in terms of what you’ve been able to offer the family, so there’s more evidence to say, ‘well, you know what, I did suggest that you look at this, have you done that yet?’” (PASS/children’s centre staff)
8. Findings from survey of professionals

An online survey of professionals was designed and set up to capture feedback from a wider range of professionals than were present at the focus group. A total of 24 responded to the survey:

- 14 Healthy Families Service practitioners.
- 4 Prevention and Support Service (PASS) staff.
- 7 Children’s centre staff.
- 1 other professional.

8.1 Promoting the app

The responses to the question about how frequently they promote the Ask Teddi app or signpost it to parents were varied, but 65% promoted it at least once or twice a week.

Frequency of promoting Teddi app to parents

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>On most days each week</td>
<td>5</td>
</tr>
<tr>
<td>Many times each week</td>
<td>5</td>
</tr>
<tr>
<td>Once or twice a week</td>
<td>7</td>
</tr>
<tr>
<td>Once or twice a fortnight</td>
<td>1</td>
</tr>
<tr>
<td>Once or twice a month</td>
<td>4</td>
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<tr>
<td>Less frequently</td>
<td>4</td>
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8.2 Views on the app

54% of professionals rated the Ask Teddi app overall as a good resource both for them as a professional and 63% rated it as a good resource for parents/families.

Professionals rated the usefulness of various features of the Ask Teddi app. Over 60% felt that the videos, FAQ section and recipe are useful. Half felt that the conversation with Teddi across the chapters and the answers to questions across the chapters were useful, but 35% felt they were not useful.

However, nearly half felt that the conversation with Teddi were not useful, with just 38% saying that it was useful.

Usefulness of these features on the app

The conversation with Teddi across the chapters
The answers to questions across the chapters
The videos that can be viewed
The FAQ section
The conversation with Teddi
The recipe section with the wide variety of different recipes

Very useful Good Not very useful Not at all useful Not sure
When asked whether there is anything else that professionals find particularly useful, the comments made were as follows.

“Good to see the links with Children’s Centre sessions.”

“To be able to ask specific questions with Teddi rather than just in relevant chapters.”

“Teddi’s instant answering of questions.”

“Videos.”

“I haven’t used the app myself and have had feedback from parents that some of it is of use to them.”

Respondents were asked whether they agreed or disagreed with a number of statements about Ask Teddi.

Agreement with statements on Teddi app

87% agreed that the information on it is a trusted source of information, it is a back up to and/or reminder of the information and advice that professionals give to parents and it is a great backup resource for parents to use between visits or in the middle of the night when they have concerns.
78% agreed that the app complements their working practices.

Around 70% agreed that the information on it is the same information that professionals give to parents and that it has helped them to standardise the information and advice they give to parents, so that it is consistent with what other professionals tell them.

65% agreed that the app is a form of learning resource for them as a professional and that it has replaced a lot of handouts and leaflets that they used to give out.

However, 74% disagreed that the app has reduced the number of contacts they have with some parents.

### 8.3 Working with families

Professionals were split in their views about whether they have seen a difference in the parents/families they are working with in terms of their knowledge and behaviours as a result of the app. While 8 had seen some positive differences, 8 had not and the remainder were not sure.

![Differences seen in parents/families chart]

Comments from professionals who had seen a positive difference were as follows.

“*Parents have fed back how they have found app helpful/useful - many have been with fussy eating.*”

“*Most parents would prefer to have a face to face or t/c discussion with a professional.*”

“*Parents have been reassured that they are doing the correct thing, able to check the decision.*”

“*Parents have said they have looked at the App and seen useful information, seeing questions that they are thinking but maybe too unsure to ask.*”
One of the professionals who had not seen a difference said:

“The families that I have promoted the app to are not using the app - either because they do not need to or because they get advice already from their Health Visitor or Pharmacist.”

One of the professionals who was not sure said:

"Due to my role the only difference I can see is that parents get the info straight away.

“I have been working a lot with families with older children so it hasn't applied to me much lately however I am aware of the app and recommend it as and when I can.”

8.4 Suggestions for improvement

When asked whether there is anything that they feel is missing from the Ask Teddi app in terms of content, the comments made are as follows.

“I just don't feel the Teddi App is very useful when explaining sleep or emotional wellbeing and tantrums. It makes no mention of brain development or communication. I don't recommend it to my families.”

“More information on Infant feeding.”

“Children's Centre recently had Baby Friendly Initiative training and the information in the new birth packs is not on the Teddi App.”

"A separate chapter about early language skills and special needs. More information about the importance of play. Links to useful website such as the Lullaby Trust, Booktrust or BBC tiny happy people. Contact details for different services such as speech and language therapy service, family advice services."

“To provide information in other languages.”

“Different languages to be used.”

“I think the topics are well covered.”

A number of professionals made suggestions about how the app could be improved.

“Some information e.g. ages and stages could be organised in tables (on my phone the info comes up as 1 very long description).”

“Handouts used by other services (e.g. the speech and language team has a handout about screen time with some suggestions).”
8.5 Other comments

A number of other comments were made about the Ask Teddi app.

“The app is a great resource and I will continue to promote this to my families with young children.”

“It is resourceful and some clients have reported that they find app useful.”

“It is great tool for parents as it provides advice for parents as they have reported it to be resourceful.”

“When first downloading I had difficulty navigating around app. Initially when using app it makes contact many times asking questions, although it seemed repetitive I feel for vulnerable/isolated parents this could be useful and a prompt for them to access further support.”

“For vulnerable families I feel the app is good as parents have little reminders and keeps families focused.”

“When a key word or a question is sent to Teddi the information that comes up is often not relevant.”

“I feel that the app does not need as much conversation, and can be too wordy, asking questions about what parents feel about the subject could be off putting and with a lot of parents having basic language skills, e.g. on the feeding page asking questions about how long a baby needs to be breast fed for, perhaps be more to the point as parents may feel they are being tested.”
9. Findings from initial focus groups

Two focus groups were held in May 2021: one group comprised six health visitors and the other comprised four children’s centre workers and one PASS member of staff. Findings from these was summarised in an interim report and the feedback was used to improve the app ahead of the more public launch.

This section summarises the findings from both focus groups, but a full interim report is available separately.

9.1 What worked well?

Overall, both groups felt that the app will benefit parents and be used by parents once some of the initial issues were resolved. Participants in both focus groups felt the app looked colourful, informative and inviting when they accessed it and they liked the pictures and images for chapters.

The Ask Teddi app training was seen as a useful explanation of how it was going to be working, how the clients can use it, and how they can help the clients to use it.

Participants in both groups felt that the topics and information on the app were good, and that the information was similar to what they would provide. There was not too much information on the app so that parents were not “overloaded” with what was there. They felt the questions under FAQs were useful and easy to browse through. One focus group felt that the frequently asked questions element of the app was the best part, although this might deviate from what the artificial intelligence aim of the app was trying to do.

Participants felt that the app seemed to cover most things that were needed, and gave feedback about a number of specific chapters:

- One person said that there was more/better information about sleep than about toilet training.
- One felt that the advice on toilet training did not cover the sort of things mums would be asking: although there was a little bit about potty training, it was more about when to start potty training rather than what mums could be doing to start potty training.
- Another said that the information about get a child to eat vegetables without an argument was “a decent response”.
- One person felt that there were several sections on the app that related to eating and food, which meant there might be a lot of repetition between chapters or that mums might not immediately work out which chapter they needed to look at.
- Several people said they had given feedback on the recipe section about there being too many for smoothies and too many using salt. One also commented that there now seemed to be a more varied selection of foods covering more diverse types of cuisine.
- One participant liked that in the sleep chapter, the Lullaby Trust was mentioned where parents could go to find further information.
9.2 What was not working well?

9.2.1 IT issues
Participants in both focus groups had had a number of IT issues with the app. The main issue for both groups was that staff who did not live in Thurrock were unable to download the app or were being asked for £4.99 to do so. This was particularly problematic for those who were still working from home rather than being in the office. However, participants in one group mentioned that two others in their team – although being in Tilbury - were being prompted for money.

Most health visitors said that the app was easy to download, although several of the children’s centre staff found it difficult to find how to register, so kept using the app as a new user – and this meant that they had to go through the same questions every time before they could use the app.

Participants in both groups said that when registering, they were being asked for their child’s birthday and gender, which was not relevant – but there was no way of registering as a professional. This meant that some had made up a fictitious child in order to access the app.

One health visitor said that although they had registered on Ask Teddi, they still could not get onto the app and were unsure about why. Several of the children’s centre/PASS staff said they had a lot of technical issues and that even after getting IT to give permission for everyone in their team to download it they could not get it to work properly: they wondered if this was because their team uses Samsung phones rather than i-phones.

9.2.2 Issues around questions
One person in the health visitor focus group said they were trying to look at fussy eating (as they were in the process of undertaking the two-year checks when many mums bring this subject up). However, when they tried to retrieve the information, the app just kept saying: “It’s retrieving your data, try again later.”

A number of health visitors said that when they asked questions: “every time Teddi types and then it says he’s gone for a cuppa.”

Focus group participants also fed back that sometimes when they asked a specific question, they merely got a very general response or a completely random one. Specific examples given were questions about breast feeding and sore nipples/breasts, eating sweet foods, sleep problems and starting solids.

Health visitors were concerned that parents would give upon the app if they could not find an answer to their question quickly and easily.

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4 In fact, this message meant that there were connection problems with the person’s internet. This information was fed back to professionals since it was not clear to them initially, and the message was subsequently altered to try to fix the bug.
9.2.3 Other things that were not working well

One of the health visitors said that they and their colleagues felt that the first introduction from Teddi was somewhat "weird". This was when he introduces himself, says he is a robot and cannot have children but if he could, he would name them the user’s name.

The health visitor group also felt that Teddi’s voice being an American accent seemed somewhat weird, and wondered why he did not have an English accent. His actual voice was also odd, being an electronic voice and “quite frightening”.

One of the children’s centre staff had an issue with all of the questions that they had to respond to before they could get to the information. They felt that this would put off parents who want a fast answer to their question.

Children’s centre/PASS staff also felt that being asked how they were feeling every few days was very irritating for them as professionals, although it would be good for vulnerable parents. One person suggested that it might be better to only ask this question (of parents) less often, or allow people to skip the question.\(^5\)

The children’s centre staff said that there does not seem to be a front page to choose an option of whether or not to go straight to the chapters or FAQs, so that navigating through was difficult. The health visitors also found the app quite difficult to navigate around the chapters rather than asking a question. If a general response is made, then mums would have to find their question in the FAQs.

There was also some confusion about the app’s content, and whether or not there was more than the frequently asked questions.

One children’s centre participant asked about choosing a language for the app as a colleague had been trying to promote it to a family with a different language and could not work out how to show them how to get into different language.

9.3 Promoting the app to parents

Most participants had spoken to parents about the app and/or were giving out leaflets within new parent packs. However, some were not as confident about the app as they would have liked to be because of the random answers to questions they have posed, so had not been actively promoting it.

Focus group participants were unsure whether the Ask Teddi app had the potential to replace the range of other apps/websites that they promoted or recommended to parents. They thought that it would work alongside others as they did not yet have the confidence to say that it matched or was better than some of the other existing sources

\(^5\) Feedback on this issue was given to professionals who were asked just to signpost parents to the app and not to register as a user to avoid this. They were also showed how to turn off the notifications to avoid this both for themselves and so that they can advise any parents who did not like this to be able to do the same.
of information. Many of the other sources are also focused on a very specific topic that Teddi could potentially signpost to.

9.4 Suggestions for improvement

One person in the children’s centre/PASS group felt that there could be a topic on infant mental health and a chapter on early communication skills, since it is an important topic when up to 30% of children go to primary school without having basic language skills - although they did acknowledge that it was mentioned in the sleep and play chapter.

One of the children’s centre/PASS group participants suggested having information for parents of children with additional needs including services and support groups to signpost them to. The same person suggested having an explanation of what different services and roles actually do, which would be particularly helpful for parents from other countries. Several participants in the group also felt that it would be good if the app could link parents to the range of services that they can access as all parents can be confused about who does what and what services are available. This would be both a type of professional role and the specific service for this in Thurrock.

One of the children’s centre staff mentioned that one of their parents had asked whether there is a live chat option, either where she could chat to other parents or where she could ask a question of a professional. Others in the group agreed with this suggestion.

Participants in the children’s centre/PASS group suggested including videos on the app for parents to access (one person mentioned that there was a very good video for breast feeding on the app already: they highlighted that this video had sub-titles and the option of choosing a language for them, which they thought was “brilliant”.)
10. Discussion

This evaluation explored the experiences of parents and health professionals of the Ask Teddi app – a digital tool that uses artificial intelligence to support parents with the health, development and wellbeing of their child from birth to five years old. Overall, the app was seen as an excellent way of delivering useful information in a supportive way by parents, particularly through the Covid-19 pandemics and lockdowns. The app was viewed as easy to use, informative and non-judgemental and had positive impacts on infant feeding, oral health, healthy eating and active play outcomes. Although there were some suggestions for improvement, the app was valued by parents and the health professionals who support them. This final discussion section considers the implications of these findings for those working in birth to five services in Thurrock and those outside this area who would like to apply learning from our evaluation.

10.1 Feasibility, usability and acceptance of the app

Overall evaluation of the Ask Teddi app by parents was very positive. Almost all who responded felt that the app was supportive and non-judgemental, informative and easy to use. Many would recommend it to friends and continue using it as their child grew. Ultimately the app left them feeling more confident, supported and knowledgeable about caring for their baby or child. Given the many challenges that parents can face during their child’s early years which can impact upon their mental health and wellbeing (Leahy-Warren et al, 2012) this is an important outcome from the evaluation. This is especially relevant given the timing of the app implementation and evaluation during the Covid-19 pandemic where many parents felt isolated, anxious and unsupported (Fallon et al, 2021; Davenport et al, 2020).

Previous research examining the impact of apps to support early parenting has been mixed, depending on the content and context of the apps features. The availability of such apps is not in shortage with one recent review paper identifying over 4300 free apps available on Google play alone (Virani et al, 2019). Parenting apps are typically valued for their accessibility and convenience, although parents can feel that it is a minefield in trying to find high quality resources (Davis et al, 2017). Positive aspects of app features have included age specific information, videos and a connection to local information (Virani et al, 2020). Conversely information that is deemed to be non-evidence based, confusing or relies too heavily on data downloads is rated more poorly (Shorey et al, 2017). Notably, research is building that suggests that apps that have some form of interactive element such as chat features, games and quizzes are rated more positively by parents (Virani et al, 2019).

Reflecting on the evaluations that parents gave of app content, it is clear that the Ask Teddi app meets many of the successful app criteria found in the literature. Parents in particular valued the interactive nature and being able to ask questions. They felt that it was a reliable, evidence-based source of information that increased confidence.

In terms of who provided this feedback by completing the evaluation, the overall demographic background of users was weighted towards a slightly different pattern than
many healthcare evaluations (Chiu, 2008). Participants tended to be younger than average with half of respondents were aged under 29 (ONS, 2019). The majority of participants had a GCSE or A level education (as against postgraduate) with significantly fewer participants with degree level qualifications than average (Universities UK). Overall half of participants were also from Black, Asian and other minority ethnic groups [BAME] in the UK, compared to approximately a fifth of residents in Thurrock being part of BAME populations - although amongst parents of school age children this is slightly higher (CoDE, 2013). Given participants from BAME populations tend to be underrepresented in health research, this is a positive finding which suggests that the app is accessible and inclusive across demographic groups (Smart & Harrison, 2017).

This reach is important as many parenting interventions reach those in more affluent, educated groups, when those who are younger with a lower level of education are on average in greater need of more support during the early years (Melhuish & Hall (2007). Potentially this reach is encouraged by promotion of the app through children’s centres and Prevention and Support Services (PASS), who work to support more vulnerable groups. It would be interesting to explore further how this demographic was reached (or alternatively why older parents with a higher level of education did not take part in the evaluation / use the app). We did not collect data on income or deprivation here, but the demographic who completed the survey would typically be of lower income. It is positive to see that a mobile phone based intervention is accessible and valued in this group, as sometimes barriers with data, downloads and cost of connection can be problematic (Thornloe et al, 2020).

10.2 Impact upon infant feeding

Exploring perceptions of the app on infant feeding experience three quarters of respondents were breastfeeding either exclusively or partially, with rates similar at 0 – 6 and 7 – 12 months. This is a much higher rate of breastfeeding than within the general population. Although 81% of mothers in the UK breastfeed at birth this drops rapidly with just a third giving any breastmilk at all by 6 months (McAndrews et al, 2012). Specifically, to Thurrock, 59% of mothers initiate breastfeeding with 48% breastfeed at 6 – 8 weeks (PHE, 2019). Here, although breastfeeding initiation rates were close to this figure with 85% of mothers breastfeeding at birth, continuation rates were far higher. This is notable as given the age and education profile of the sample, it might be expected that these figures would be lower. Data consistently shows that mothers who are younger with a lower level of education are less likely to initiate and continue breastfeeding (Brown, 2021).

These data could be interpreted in two ways. Potentially mothers who are motivated to breastfeed are also more motivated to use the Ask Teddi app and seek out the breastfeeding information. However, examining the questions exploring perceptions of the usefulness of the breastfeeding information on the app, and impact of this information upon infant feeding experience, it can be cautiously concluded that the app itself is helping mothers to breastfeed for longer. Indeed, all mothers who completed the items exploring impact of the app felt that it helped them to do so, rating the app highly in terms of areas such as helping them learn about how breastfeeding protects their baby, signs that they were getting enough milk and how to latch their baby on.
Research tells us that support that is consistent, supportive and from a trusted source helps women to breastfeed for longer (McFadden et al, 2017). In the open ended boxes mothers emphasised how the information was factual and informative in helping them with aspects such as latch but also incredibly supportive and non-judgemental – again both aspects of support that in combination help mothers to breastfeed for longer (Myers et al, 2021).

Importantly it covered both practical and emotional support which are known to work in tandem to enable mothers to breastfeed for longer (McFadden et al, 2019). In both the surveys and interviews mothers felt that they were being listened to and supported as well as receiving trusted and accurate information; something which is increasingly recognised as a critical part of breastfeeding support (Myers et al, 2021). In particular mothers appeared to find the videos embedded in the app useful, helping them to visualise how to hold and position their baby which has been identified as a strength in previous research (Demirci et al, 2016).

The accessibility and instant access to breastfeeding information, and ability to ask questions to tailor this was an important element of how the app worked. Although there is considerable evidence that breastfeeding support is important in helping women to breastfeed for longer, underfunding, gaps in service provision and a lack of uniformity in support offers can mean that many women miss out on high quality breastfeeding support (Grant et al, 2018). Cuts to services mean that many women seek out online and other digital sources of support (Morse & Brown, 2021) which was exacerbated by social distancing and reductions in face to face support during the Covid-19 pandemic (Brown & Shenker, 2021). However, the breadth of information available online can sometimes be a downside. Too much information that can sometimes be conflicting and inaccurate (Regan & Brown, 2019) can be overwhelming.

The Ask Teddi app meant that users could instead access this trusted information immediately at a time convenient to them. This is important as many breastfeeding problems can quickly escalate without support (Wagner et al, 2013). Additionally, it enables mothers to find information they need without having to wait to contact their health professional, potentially freeing up midwives and health visitors to offer targeted support for those with more complex issues. Research has shown that new mothers often feel that they shouldn’t ‘bother’ health professionals with small questions, leading to a lack of support, misinformation and ultimately breastfeeding cessation (Hoddinott, Britton & Pill, 2010). This was exacerbated during the pandemic with many families worried about the pressures health professionals were under (Brown & Shenker, 2021). The Ask Teddi app relieves some of this pressure and complements face to face support.

The app also provided information around formula and mixed feeding. Notably this information was also well received with participants rating the app content supportive and useful in terms of information such as how to safely prepare feeds, how milk to give and how to feed responsively. This is important because a number of research studies have shown that women often feel that there isn’t enough support with bottle feeding, or combining breast and formula feeding (Appleton et al, 2018). This leads to many lacking confidence in knowing which milk to use and how much to give (Brown et al, 2020) and can result in some feeling unsupported and stigmatised (Fallon et al, 2017).
10.3 Impact upon oral health

Oral health continues to be an area of concern with high rates of tooth decay in preschool children (PHE, 2018). Given the impact of tooth decay upon children, families and health services it was positive to see the oral health section of the Ask Teddi app well received by parents. Knowledge, confidence and subsequent oral health behaviour was positively affected across domains of tooth brushing, dental visits and sugar reduction. Over three quarters of parents noted that they were now brushing their child’s teeth for longer and more often and changing the drinks they offered their child as a result of using the app. Additionally half of parents had visited the dentist since reading the information in this section.

The ability of the app to deliver this information in an interesting and accessible way is likely helping remove the barriers that many parents face in relation to oral health. Many parents still feel unsure about when and how to clean their children’s teeth, often affected by their own experiences (Isong et al, 2010) and the app is helping overcome these misconceptions. This was especially relevant for parents of younger babies, some of whom had not realised how early tooth brushing and gum care needed to start – something that is a common area of confusion (Eskyte et al, 2021).

Parents valued how non-judgemental this section of the app was alongside the quality of information given. In particular a number of parents commented on how it didn’t just tell them what drinks to avoid but gave suggestions about what replacements to make. The sugar industry is powerful with significant influence on young children and families through marketing and media (Duijster et al, 2015). Having strategies to overcome these is clearly useful for parents.

10.4 Impact upon healthy eating

The information in Ask Teddi around healthy eating and diet was again well received by parents. The app tackled a range of different issues including dietary intake, portion sizes and making meals more interesting in a healthy way. In terms of impacts upon family diet almost all parents felt that the app helped them in aspects such as reducing sugar, introducing more fruit and vegetables, managing portion sizes and swapping to healthier snacks.

Childhood overweight and poor dietary quality continue to be concerning issues in the UK. With over a quarter of children already overweight or obese by the time they start school (NHS, 2021) and many eating a diet that is not nutritionally of high quality (WHO, 2017), interventions that help parents support their child’s diet are important. Many parents struggle with knowing what foods to feed their children, lacking confidence in meal preparation and balance (Blake-Lamb et al, 2016). However, parents who used the Ask Teddi app reported feeling more knowledgeable and confident and better prepared to provide their child with a balanced diet.

Food fussiness is common in young children with many avoiding foods that are highly nutritious but often have stronger flavours. Conversely foods that are high in sugar, salt and saturated fat can be highly palatable (Taylor et al, 2015). Many parents feel anxious
about their child’s fussy eating and limited dietary intake and unsure how to support this, which ironically has actually been shown to increase child fussiness (Wolstenholme et al, 2020). However, many felt that the information in the app supported them in offering new foods and positively encouraging their child to try them. The app used evidence based strategies around what works to support fussy eating (i.e. making meals enjoyable, offering but not pressurising, modelling positive behaviours) rather than maladaptive strategies that can actually exacerbate the issue (Nekitsing et al, 2018).

Parents particularly valued the food ideas and recipes sections for inspiration. Dietary interventions that work focus on not simply increasing knowledge but increasing skill, recognising that a healthy diet is not simply about knowing what foods to eat but rather having the skills and knowledge to be able to prepare appetising meals (Martin et al, 2020). Parental cooking skills and knowledge affect infant and child diet and as a consequence weight (Paes et al, 2015) and this has been highlighted in previous research as something parents want more information and support with (Khanom et al, 2015). It is clear from the evaluation that this information directly helped many parents improve their child’s diet through increasing ideas, inspiration and knowledge.

Notably many valued having a diverse range of recipes from a range of cultures, with images that reflected their family set up. This diversity and cultural relevance is important (Habib-Mourad et al, 2014) but often still lacking in some nutrition interventions (Baruth et al, 2014). However a number of parents commented that they were able to ask questions around food that was relevant to their ethnicity and culture and that made them feel valued and included by the app.

12.5 Impact upon active play

Finally in relation to active play, participants again reflected positively on how the app had helped them incorporate more movement and activity into their baby or child’s day. For younger non mobile babies this included more tummy time which is an important element of increasing muscle strength and gross motor development (Hewitt et al, 2020). Although the sample size was small, over a quarter of parents of non-mobile babies who used the app reported that their baby had some tummy time each day which is significantly more than the 10% reported in some studies (Hesketh et al, 2017). A further two thirds made sure their baby had tummy time most days.

For older more mobile children this included elements such as parents increasing their child’s time outdoors and time spent on activity, both of which are important aspects in helping children maintain a healthy weight (Herrington & Brussoni, 2015), improve fitness (Westergen et al, 2016) and develop social and problem-solving skills (Bateson, 2015). Over half of parents of walking children said that they got outside with their child most or every day and three quarters stated that their child had at least three hours of active time each day – considerably more than the 9% of 2 – 4 years olds reported in previous research (HSCIC, 2016).

Parents credited the information in the app in helping them understand the importance of active play and feel more knowledgeable and confident in ways to embed it in their child’s daily routine in ways that did not need to feel formal or expensive. Notably the
information also supported parents in recognising the importance of activity for themselves which is not only an important aspect of parental health and wellbeing but impacts upon child activity and health. Children whose parents are active are more likely to engage in physical activity themselves both as children and to continue as they become more independent as teenagers (Schoeppe et al, 2016). Reductions in how much time parents used screens with their baby or child were also seen with parents acknowledging that the app increased their knowledge and awareness of limits around screen time and helped them reduce it. Given the ever increasing nature of how much screen time we are all exposed to and the negative associations between screen time and child increased BMI, lower activity and poorer sleep quality (Janssen et al, 2020), this is a welcome finding.

### 10.6 Impact and integration into existing local support

As part of the evaluation the views of local health visitors and children’s centre staff were explored through focus groups. Drawing on these views and those of parents’ comments through the survey it was clear that the app was working alongside existing health visiting and early years’ services. Parents felt that it complemented existing services and provided an additional layer of support that they could access immediately. One of the most common requests for further development of the app was to be able to link directly to health professionals through it, suggesting that it is viewed in a collaborative way rather than ‘replacing’ staff.

Professionals also broadly viewed the app as useful, although some found it a little tricky to access information sometimes. Many felt reassured that there was an additional layer of evidence-based support available for families to use, feeling as though it reduced the pressure on them to be the only point of contact and directed parents towards an accurate source of information which represented the guidelines and information that they would offer.

We know that local services are under considerable pressure, exacerbated by the Covid-19 pandemic. Postnatal and early years’ care is underfunded with many midwives and health professionals struggling with large caseloads (RCM, 2014; IHV, 2021) and burnout (Cull et al, 2020). The National Maternity Review (2016) identified particular issues with underfunding of mental health and infant feeding services, so any intervention that can help ease the load by providing evidence based, acceptable and useful information is valued. Notably the app has the potential to further support our health services. Complications from low breastfeeding rates (Renfrew et al, 2012) and postnatal mental health issues (Bauer et al, 2014) place significant strain on GP and hospital resources and as a result the economy.

It is vital however that this app is seen as an additional solution rather than ignoring the current funding crisis or underestimating the need for face-to-face support. Notably few professionals felt that the app had reduced the number of contacts they had with parents. Instead, the app backed up and complemented the work that they were already doing. Given the pressures that health and childcare professionals are currently facing, the app is therefore likely playing a role in supporting their workload and wellbeing too. However some professionals felt that they needed more information or support in navigating the
app or that some sections needed updating or extending. Implementing new technologies into services can be challenging, working best when developed in collaboration with all those who are affected and potentially benefit from its use (Plsek and Greenhalgh, 2001). Adaptations to ensure they fit within existing structures and processes are important (Greenhalgh et al, 2004). Incorporating feedback from professionals is an important part of the long term success of this app.

10.7 Improving the app

Both parents and professionals were asked how the app could be improved. The vast majority of responses were additive i.e. wanting more information, more content and the ability for interaction with other parents and healthcare professionals. Some parents wanted more detail on the topics provided, while others wanted additional topics added such as elements of baby care.

Considering the option of having an interactive element to the app, potentially linking parents to health professionals or other relevant experts (i.e. in infant feeding, healthy diet) may be something to consider further. Clearly there would be additional costs, training and staffing needed for this. However, the return on investment could be significant. Research has identified that interactive apps that use automated texts (Gallegos et al, 2014) or responsive two way texting between mothers and professionals (Harari et al, 2018) can increase breastfeeding duration. Engaging with a health professional over an app has also been shown to increase maternal breastfeeding confidence (Demirci et al, 2020) and enhance feelings of emotional support (Martinez-Brockman, 2020). Exploring this across the different elements of the app may be an interesting future development to consider.

Another core change that could be made in future would be the translation of the app into different languages. At this stage, as with many projects testing app development, the app was only available in the English language but future iterations may wish to consider additional translations given the backgrounds of the users in our evaluation. Apps and other interventions that are available in different languages help reach a more diverse range of users, particularly those who may be struggling due to speaking English only as an additional language (Hughson et al, 2018).

10.8 Limitations of the evaluation

As with any evaluation there are a number of limitations to our analysis including potentially accessing more motivated parents and professionals. Social desirability responses, where participants give the ‘correct’ answers or those they think the researchers want to hear are often common in evaluations, especially when participants have benefitted from an intervention and want to ‘give back’. However although evaluation responses were typically very positive, participants did feel that they could discuss limitations and areas for improvement.

Although sample size was sufficient to gain a depth of resources across most elements of the study (i.e. the survey, in app responses and professional focus groups), recruiting
parents to take part in one to one interviews was challenging resulting in only three participants. Given the depth of responses across other areas of the evaluation this was mitigated, but themes emerging from the parent interviews should be treated with caution.

Although the app was available for download by all parents in the region, few fathers took part in our evaluation. This is a similar pattern to much of parenting research exacerbated by societal expectations that it is the mother who will be the primary caregiver (Brooks and Hodkinson, 2020). Qualitative research with fathers highlights how many feel that the focus is on maternal experiences of parenting (Hambidge et al, 2021) and in part the content of the app may be skewed in part towards mothers with information about breastfeeding. However, information about breastfeeding is relevant to fathers and partners too (Brown & Davies, 2014) and other aspects of the app would be relevant to all parents particularly in relation to mental health and wellbeing. It is not just mothers who can experience postnatal mental health difficulties, with fathers also experiencing increased stress during the early years (Philpott et al, 2017). Potentially more publicity is needed around the app to showcase its relevance and applicability to fathers too.

The launch, implementation and analysis of the app took place during the Covid-19 pandemic, in part during local lockdowns and social distancing restrictions. This may have affected use and perceptions of the app and a longer-term study exploring its continued impact would be useful. However, it should be highlighted that the positive outcomes of the app may be even more commendable due to the recognised challenges that parents have been facing through the pandemic. Given the evidence that many families have struggled with breastfeeding (Brown & Shenker, 2021), child obesity rates across the country have risen (NHS, 2021), and many families are struggling to access dental care (Kalash, 2020), the app may have been released at a pertinent time.

It would also be insightful to examine the impacts of the app within a randomised controlled trial, or comparing outcomes at a population level to an area that does not have the Ask Teddi app. Our outcome data is very positive; many parents felt that it helped enhance their knowledge, confidence and skills across the aspects evaluated. However without a control group it is difficult to conclude how much participant background affected this. As with any voluntary intervention, those who may be most at need of support or who have a particular interest in parenting may be more likely to download and use the app. This motivation may affect behavioural outcomes such as breastfeeding or oral care, or readiness and ability to learn from the information.

10.9 Conclusions

Bringing the evaluation to a close it is clear that the Ask Teddi app was viewed as a supportive and useful innovation for parents and the professionals who support them. It was accessible and easy to use and offered an additional layer of localised support and information. In relation the core areas evaluated, the app helped to increase knowledge, confidence and positive behaviours relating to infant feeding, healthy diet, oral health and active play.
Recommendations made for improvement of the app focussed on expanding content and accessibility rather than criticisms of content or approach. This included provision in additional languages and the option to connect directly to other local mothers and health professionals.

Although there are some limitations of the evaluation as noted, overall the Ask Teddi app is seen as a valuable, accessible and useful support for new parents.
11. References


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