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Examining parents' experiences and challenges of feeding preschool children with avid eating behaviour

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ABSTRACT

Avid eating behaviours, including greater responsiveness to food cues and emotional over-eating, have been linked to child overweight and obesity. Parental feeding practices are modifiable components of a child's food environment and may be key levers for behaviour change in tailored interventions to support parents of children with avid eating behaviour. However, there is a lack of research examining parents' experiences in this context. This study aimed to explore parents' experiences of feeding children with avid eating behaviour and to understand any challenges experienced in this context. Semi-structured interviews with parents ($N = 15$) of a preschool child (3–5 years) identified as having an avid eating behaviour profile explored how children's avid eating manifests, the parental feeding practices used to manage avid eating, and the perceived effectiveness of these strategies. Data were analysed using reflexive thematic analysis. Four core themes were generated. Theme one, 'Have they got worms? Children's insatiable hunger', captures parents' interpretation of the complex ways in which avid eating behaviour manifests. Theme two, 'Parenthood as a duty', illustrates how parents' perceived responsibilities shape their feeding practices. Theme three, 'Lifelong habits', captures parents' use of responsive feeding practices to support children's healthy relationship with food. Theme four, 'Picking battles', captures the structure- and coercive-based feeding strategies commonly used to manage children's avid eating. This novel study provides an in-depth understanding of the complex ways that children's avid eating behaviour manifests, and the strategic and creative parental feeding practices used to manage these behaviours. Such findings are valuable for informing the development of future support resources for parents/caregivers to help their children with avid eating behaviours to develop a healthy relationship with food.

1. Introduction

There is substantial evidence to suggest that appetitive traits differ between individuals (Carnell et al., 2013). Conceptualising and understanding patterns in children's eating behaviour could be more helpful than focusing on individual eating behaviours in isolation (Russell et al., 2023). Indeed, research using Latent Profile Analysis has examined the clustering of preschool children's eating behaviours and has demonstrated identifiable eating profiles (Fisher et al., 2022; Tharner et al., 2014). Notably, Pickard et al. (2023) identified four comprehensive eating profiles in preschool children aged 3–5 years: avid eating, happy eating, avoidant eating, and typical eating. Specifically, an avid eating profile, constituting 22% of the sample, was characterised by greater food responsiveness, higher enjoyment of food, a tendency to over-eat in response to negative emotions, faster eating, weaker sensitivity to satiety cues and lower levels of food fussiness.

Genetics play an important role in the development of children's eating behaviour. Twin studies have indicated that appetitive traits are moderately to highly heritable, except for emotional eating which is largely influenced by environmental factors shared by co-twins (Herle et al., 2018; Warkentin et al., 2022). The Behavioural Susceptibility Theory suggests that interactions between genetic and environmental

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factors contribute to the expression of eating behaviours that can increase the risk for the development of obesity (Llewellyn & Wardle, 2015). Indeed, the appetitive traits that characterise an avid eating profile, such as responsiveness to food cues, enjoyment of food, and emotional overeating, have been found to be positively associated with adiposity (Kininmonth et al., 2021). Moreover, prospective studies indicate that variation in appetite avidity is associated with increased weight gain over time, suggesting that appetitive avidity may play a role in the development of childhood obesity (Kininmonth et al., 2021). While the association between an avid eating profile and BMI in preschool children remains to be examined, research with 8–12-year-old children with overweight and obesity has found that a "High Food Responsive" eating profile, which includes high levels of food responsiveness and low levels of satiety responsiveness, is associated with higher BMI scores (Boutelle et al., 2014). Therefore, it is plausible that preschool children with an avid eating behaviour profile could be at greater risk for the development of overweight or obesity.

One powerful component of a child's food environment that shapes the development of eating behaviour is parental feeding practices (Savage et al., 2007; Scaglioni et al., 2018). Parents' feeding practices can be described by three overarching domains: coercive control, including restriction and using food to control negative emotions; structure, including use of rules, limits, and monitoring; and autonomy support, including encouragement and negotiation (Vaughn et al., 2016). Qualitative research has explored parents' experiences of managing feeding interactions with children with obesity. For example, Ek et al. (2020) interviewed parents of preschool children with obesity and their findings illustrated the challenges that parents experienced with managing their child's larger appetite, such as determining appropriate portion sizes and restricting food. Furthermore, Nowicka et al. (2021) interviewed parents of children, four years after beginning obesity treatment for their child. Parents described altering their child's food environment using various feeding strategies, including covert (e.g., limiting portion sizes) and overt (e.g., offering healthier foods) strategies. However, the effectiveness of feeding strategies varied, and the continuous management of their child's food environment was reported to be challenging at times. These findings therefore suggest that maintaining healthy eating habits and trying to change or maintain children's weight can be challenging for parents of children with obesity and indicate that parents may be strategic in the feeding practices that they use to manage these interactions. While children in these studies were described as displaying behaviours that characterise a more avid appetite, children's appetitive traits were not specifically examined, and the children had already developed obesity. Thus, it is important to understand parents' experiences and challenges of feeding young children who have been identified as having an avid eating behaviour profile, and who are at greater risk for the development of obesity.

Specific feeding practices have recently been linked to appetitive traits that characterise an avid eating profile using quantitative data. Longitudinal research by Kininmonth and colleagues (2023) showed that greater parental use of pressure to eat and emotional feeding during toddlerhood (15/16 months) was prospectively associated with increases in food responsiveness and emotional overeating from toddlerhood to early childhood. Furthermore, Pickard et al. (2023) found that parents of pre-schoolers with an avid eating profile reported greater use of food for emotion regulation, and greater restriction of food for health and weight, compared to parents of children with typical, happy, or fussy eating profiles. Together, these findings demonstrate that parents use controlling feeding practices to manage children's avid eating behaviour. Although the use of restrictive and controlling feeding practices has been associated with higher levels of avid eating behaviours (e.g., higher food responsiveness and emotional overeating; Say et al., 2023), greater eating in the absence of hunger (Savard et al., 2022) and higher child BMI (Shloim et al., 2015), it is possible that these strategies may actually be helpful (Campbell et al., 2010) – or necessary - for feeding children with a more avid appetite. However, research is needed which aims to explore the feeding practices that parents use and perceive to be helpful for managing children's avid eating behaviour.

In summary, quantitative data indicate that preschool children with an avid eating behaviour profile are likely to be at greater risk for the development of obesity, and both receive and elicit more controlling feeding practices. However, research is yet to provide an in-depth understanding of parents' subjective experiences of feeding children with avid eating behaviour. Feeding interactions are complex, and research has demonstrated the plethora of influences on children's dietary intake, such as parental and child factors, and the household environment (e.g., Jarman et al., 2022). Based on the principles of social relational theory (Kuczynski & De Mol, 2015), parents and children are equal agents in feeding interactions, and each have personal goals and expectations which could influence parental feeding behaviour. It is therefore important to consider parental feeding behaviour within the broader context of the complex parent-child feeding relationship since children's avid eating behaviour is likely to impact both parents and children. Exploring this is important given that feeding interactions in families with a child who shows avid eating behaviour may be more challenging, with parents aiming to meet children's nutritional needs, manage weight, and promote healthy dietary behaviours. Effectively managing challenging feeding interactions may help to improve the emotional climate at family mealtimes, and subsequently children's healthy eating behaviour (Saltzman et al. 2018). Thus, parents may need support which is tailored to the specific challenges of feeding a child with avid eating behaviour. Therefore, the current study used a qualitative approach to explore parents' experiences of feeding preschool children (3–5 years) who were identified using Latent Profile Analysis as having an avid eating behaviour profile, to understand how avid eating behaviour manifests, identify the key challenges faced by parents, and the feeding strategies they use and what strategies are perceived to be effective.

2. Method

This study is part of a larger programme of research (Appetite in Preschoolers: Producing Evidence for Tailoring Interventions Effectively (APPETItE): https://www.appetite-research.com/). It was pre-registered (https://osf.io/yrbeu) and followed the guidelines and recommendations outlined by Standards for Reporting Qualitative Research (O'Brien et al., 2014) and Consolidated Criteria for Reporting Qualitative Studies (Tong et al., 2007).

2.1. Recruitment

Participants were parents with a child aged 3–5 years old, who had been previously identified as having a profile of avid eating behaviour (Pickard et al., 2023). An avid eating behaviour profile was identified using a latent profile analysis of parent reported children's eating behaviour. Of these parents, 150 consented to be contacted about participating in future research. Parents of children with the highest probability of belonging to the avid eating profile (probability of 0.85–1) were invited to participate (n = 108). Parents were randomly invited in blocks of approximately ten participants. Each block aimed to invite a proportion of men and participants of non-White British ethnicity to recruit a diverse and representative sample. Participants were recruited via email invitation or direct message on the survey platform Prolific. Eligibility criteria included parents who were English-speaking, and who were responsible for feeding their child more than half the time when their child is at home. Parents of children with severe learning disabilities, autism, or chronic illnesses that directly influence their dietary requirements and eating habits were not eligible to participate. Aston University Health and Life Science Research Ethics Committee provided ethical approval (#HLS21053). Parents provided informed consent for their participation.

2.2. Participants

Of the 108 eligible parents contacted, 16 consented to participate. One participant was excluded because their child was over 6 years (72 months) old. Hence, 15 parents were included in the final sample (14 female, 1 male). Information about parent and child demographics, food security, and children's eating behaviour was gathered in the initial survey that participants completed (see Pickard et al., 2023 for details). Parents had a mean age of 35.73 years (SD = 3.57; range = 31.0–41.8) and were of White (n = 12), Black African (n = 1), and South Asian ethnicity (n = 1), and mixed or multiple ethnic groups (n = 1). Most parents had degree-level qualifications (n = 9). Preschool children with avid eating behaviour (9 female, 6 male) were 3–5 years old (mean±SD = 4.5±0.62 years).

The Index of Multiple Deprivation (IMD) ranks residential areas in England based on seven domains: income, employment, education, health, crime, barriers to housing and services, and living environment. IMD decile scores are calculated by ranking residential areas in England into 10 equal groups, using postcode data (Office for National Statistics, 2022). Postcodes were available for n = 13 participants. The mean IMD decile score was 4.54 (SD = 2.57), and scores ranged from 1 (indicating the most deprived 10% of residential areas) to 9 (which indicates the least deprived 20–30% of residential areas). Participant food security was assessed using the Short Form of the Household Food Security Scale (Blumberg et al., 1999). Responses are summed and were categorised as follows: 0–1 = high or marginal food security (n = 11); 2–4 = low food security (n = 3); 5–6 = very low food security (n = 1). Mean household food security in this sample was in the high or marginal category (mean ± SD = 1.00 ± 1.89; range = 0–6).

2.3. Data collection

Data collection was between October and December 2022 and finished when all eligible parents had been invited to participate. Individual semi-structured interviews were conducted and digitally audio-recorded using the online video-chat platform, Zoom. Participants chose whether they wanted their video camera on or off during the interview. Interviews were conducted by a female postdoctoral researcher KLE, who does not have children, and whose background is in children's eating behaviour research. The interview guide included 10 semi-structured questions exploring how children's avid eating behaviour manifests and the experiences and challenges that parents encounter when feeding their child. Questions also examined which (if any) feeding strategies parents use to limit their child's food intake, and whether parents find these strategies effective (Supplementary Table 1). Representatives from our Patient and Public Involvement and Engagement (PPIE) panel with experience of feeding preschool children, and researchers from the APPETItE project whose expertise are in children's eating behaviour, were involved in the development of the interview schedule. The interview guide was piloted with six parents of children with high food approach behaviours (e.g., high enjoyment of, and responsiveness to food) and amended where appropriate. Participants who completed the pilot study were not included in the final sample. During the interviews, participant responses were probed by the interviewer for more detail where possible, to gain a richer understanding of their feeding experiences. Interviews were 33 min on average (range = 17–47 min). Participants received a £10 shopping voucher after taking part.

2.4. Data analysis

Interviews were transcribed by the transcription company, TranscribeMe. Transcripts were checked for accuracy against the audio files by KLE. Any missing words or inaccuracies were corrected. Data were analysed using an inductive approach to reflexive thematic analysis to explore and critically analyse parents' subjective experiences of feeding their preschool child with an avid eating profile (Braun & Clarke, 2019, 2022). An experiential orientation to data analysis was adopted to prioritise parents' subjective experiences. However, the authors recognise that their knowledge of theories relating to eating behaviour are likely to have influenced data analysis since reflexive thematic analysis cannot be conducted in a 'theoretical vacuum' (Braun & Clarke, 2021).

The first author (KLE) led the data analysis and had regular discussions with authors EH, JB, CF, and AP to ensure quality and rigor of the analysis, and to develop the final themes. A single coder was used because reflexive thematic analysis does not aim to achieve consensus among coders, rather it focuses on the researcher's reflexive engagement with the data (Braun & Clarke, 2013). Quality and rigor of analysis was ensured through a systematic and rigorous analysis of the data and researcher reflexivity (Braun & Clarke, 2022). To reflexively engage with the data, KLE kept journals during the data collection and analysis period. Writing and re-visiting these journals throughout the analytic process helped KLE to reflect on her positionality and how it influenced analysis. Regular discussions with co-researchers encouraged critical engagement with the data and assisted the generation of themes. To ensure that the analytic process was systematic and rigorous, the six-steps outlined by Braun and Clarke (2006) were used as guidance: familiarisation with the data; coding the data; generating initial themes; developing and reviewing themes; refining, defining, and naming themes; and writing up the analysis. Reflexive thematic analysis is not a linear process of progressing through each phase, rather it is an iterative process with moving back and forth through phases (Braun & Clarke, 2021), thus, more detail of the analytic process is outlined in Supplementary Table 2.

3. Results

Four core themes were generated inductively from this analysis: (1) Have they got worms?! Children's insatiable hunger, with the subtheme (a) More than hunger; (2) Parenthood as a duty; (3) Lifelong habits; and (4) Picking battles, which comprised the subthemes (a) Knowing the rules and (b) Reducing parent burden. Themes are detailed below with participant quotations to demonstrate findings.

3.1. Have they got worms?! Children's insatiable hunger

This theme illustrates the complex ways that avid eating behaviour manifests. An avid eating behaviour profile was characterised by most parents as an insatiable hunger, involving children continuously asking for food throughout the day: "*She just relentlessly asks for food. She will finish a meal and say she's still hungry" (Ppt 9)*. Attempting to satiate their child, parents often supplement mealtimes with *"a million snacks" (Ppt 8)*. While some parents accepted their child's avid eating as part of the child's personality, the inability to feed children to fullness was concerning for some parents: *"I was like, "Has he got worms? Is there something wrong with him?"" (Ppt 14)*. However, most parents were not concerned about their child eating continuously since they were not worried about their child having under- or over-weight. Moreover, many parents reported that children had good satiety responsiveness and did not over-eat; children's frequent eating did not necessarily equate to the volume of food consumed. Indeed, some parents described their child's preference for picnic style meals and grazing on food throughout the day: "*when I say she eats, she doesn't eat a huge quantity, but she just eats bits. She likes having a little bit of everything. She might not finish everything she starts, but because we know she enjoys trying different foods and eating different foods, then we will give it to her" (Ppt 15)*. However, some parents reported that children had poor satiety responsiveness: *"if I leave the box of grapes, he'll just sit there and … eat grapes. He doesn't sort of have that stop button" (Ppt 1)*.

Another key characteristic of an avid eating profile is high enjoyment of food, with most parents describing their child's love of food and their willingness to eat a variety of food: "*He's a big foodie … He loves all sorts*

of food. There's not very much that he won't eat" (Ppt 12). Eating for pleasure was central for many children, with eating occasions being highly anticipated and enjoyable for many families: *"some people eat for function … but most people I know eat as an enjoyment, and she definitely has that when it comes to her mealtimes" (Ppt 10)*. Despite having avid eating behaviour, some children also experienced the developmental peak in food neophobia and fussiness. While some parents recognised it was a developmental phase, others found it challenging to manage the unpredictability of their child's food preferences: *"it's tough … he's going through the very picky stage. I'm encouraging vegetables, all the healthy stuff, but at the moment all he wants is the junk food" (Ppt 14)*.

3.1.1. More than hunger

This subtheme illustrates parents' interpretations about why their child is continuously hungry and asking for food. The findings demonstrate that avid eating behaviour is more complex than children experiencing an internal (physiological) response to being hungry since parents reported various reasons that trigger their child asking for food, such as wanting attention, craving a particular food, and asking out of habit. Specifically, children's expectation of food was prevailing in parents' narratives, with children expecting food when triggered by food cues and also expecting food as part of their typical eating routine. Parents reported a variety of food cues that triggered children asking for food. Key triggers included when children saw a food outlet, such as an ice cream van or a sweet shop, and when children observed others eating, such as their peers, siblings, and parents: *"if they see people, "Oh, but such-as-such had this," or if we've been in the shop and seen something new or seen a friend or someone in there eating something" (Ppt 3)*. This suggests that children's avid eating is manifest in their food responsiveness. Some parents reported denying children's requests for food if they perceived children to be testing boundaries, but were lenient on some occasions (i.e., at a birthday party). Moreover, some children expected to receive food out of habit, such as having pudding, or an after-school snack: *"when she comes home from school she immediately—before she even gets in the car, she wants to know is there a snack in the car" (Ppt 9)*.

Another trigger for children asking for food was boredom, which was illustrated through parents' narratives in different ways. For example, some parents explicitly stated boredom as a trigger, whereas others described the absence of their child asking for food when pre-occupied. This provides evidence that requests for food are less frequent when children are occupied, usually outside of the home, compared to when they are bored, usually when relaxed at home: *"when he's had a really busy day, if he's been playing a lot, or if he's been out, and we've been on the go a lot, he generally doesn't eat as much. It's when we've calmed down, and we're just kind of sat around" (Ppt 4)*. In situations where parents believed their child asked for food due to boredom, parents reported using distraction techniques, such as engaging in activities, to manage their child's eating: *"if you distract her with something, she'll quite easily forget about asking for food" (Ppt 5)*. However, it was often challenging for parents to know whether their child's requests for food were due to genuine hunger: *"I don't know if maybe in the house she gets a little bit bored … But then when we're out, she will say she's hungry as well. So I don't know" (Ppt 15)*. While many parents recognised that requests for food were not always due to genuine hunger, some parents were happy to give their child food because they believed it was important for growth and development or to fuel their active lifestyle: *"we do quite a lot of active things … I trust that if they're hungry, then it's because they're expending a decent amount of energy. And it's natural that they would be hungry" (Ppt 10)*. Some parents perceived that their child's continuous asking for food was a result of their shared environment, for example, children modelling their parents' frequent eating: *"He knows I like my food. I've got a reputation for eating a fair amount and fairly fast, and so I think that rubs off on [the children]" (Ppt 1)*. While the transmission of eating behaviours was a concern for some parents who had personally experienced challenges with their own eating, several parents were pleased that their child shared their enjoyment of food: *"We are all very interested in food. It is a big part of our daily life … she's definitely got that from us" (Ppt 7)*.

3.2. Parenthood as a duty

This theme highlights the responsibilities that parents often feel they have as part of their parenting role and the feeding strategies they use to manage their child's avid eating behaviour as a result. A prevailing narrative from parents was their perceived responsibility to provide sufficient food for their child, ensuring that they had *"full tummies" (Ppt 14)*. Parents demonstrated their ability to provide for their child by allowing additional servings at mealtimes or offering children food to avoid them being hungry: *"if they're asking for extras or for seconds … I wouldn't say, "No, you can't have anything else," because that tells me that they're hungry. And if they're hungry, then you need to feed them" (Ppt 3)*. This perceived duty was a key aspect of the parenting role: *"there is just something about your child having a full tummy that makes you happy. If they are hungry or you haven't managed to satisfy that need, it's just something intrinsic within you. It's unnatural" (Ppt 9)*.

As part of parents' perceived duty, most discussed their responsibility to limit children's food intake, especially unhealthy food for health reasons: *"I think it's dangerous to let them just have tonnes of sugar … so I do try and limit that a bit" (Ppt 5)*. Parents reported using various covert and overt strategies to limit their child's unhealthy food consumption. For example, most parents described controlling how often their child was allowed to eat unhealthy foods, and the portion size they were given: *"Yeah, it's my job to do that … I wouldn't give her a big packet of something and trust her … I will give the portion sizes of things. I wouldn't leave it to her" (Ppt 10)*. Some parents also discussed how they covertly controlled children's access to unhealthy food: *"I don't keep sweets in the house … If they go to parties, I'll put the sweets in the cupboard, and they won't even ask, and they forget about them" (Ppt 11)*. Generally, parents reported that children were accepting of their parents limiting unhealthy food since it was not restricted entirely, thus they recognised it as a treat. However, some children desired autonomy over their food choices and perceived their parents' limiting as unfair: *"he struggles to understand the idea you can't just constantly have all the nice things and … you can't just eat the same things all the time as well" (Ppt 1)*. One challenge that some parents experienced was that other caregivers did not also limit the child's access to foods: "*my dad basically never says no to her, so I have to put my foot down with him" (Ppt 8)*. This inconsistency in feeding practices was often frustrating for parents. Few parents described limiting children's excessive consumption of fruit; healthy snacks were not typically limited by parents unless it was before a meal. These findings highlight parents' perceived responsibility to provide their child with a nutritious diet and illustrate the limiting strategies that parents use to manage the high food responsiveness, and the poor satiety responsiveness which was characteristic of an avid eating profile for many children.

It was evident from parents' narratives that different feeding practices were typically used at mealtimes compared to snack times. For example, many parents preferred their child to be satiated by eating a meal, rather than snacks: *"I feel a bit guilty that it's kind of like empty food that's taking up space of proper home-cooked nutritious food. So yes, I'm a bit more limiting on snacks than I am on main meals itself" (Ppt 8)*. As a result, most parents reported that they allowed their child to have additional food at mealtimes. Moreover, several parents encouraged their child to listen to their own satiety cues at mealtimes by providing them with small portions, but giving children the opportunity to ask for more: *"we normally serve her a small portion, and then if she's still hungry, she can have more … I want her to eat [so] that she's full, but I also don't want to make her feel that she has to clear everything from her plate" (Ppt 7)*. This strategy was found to be beneficial for encouraging children's eating at mealtimes as they were not overwhelmed by large portions. However, providing children with autonomy over their intake at mealtimes is distinct from the limiting strategies that parents often used at snack

times. This therefore highlights the need for parents to use different feeding practices at different times of the day.

3.3. Lifelong habits

This theme illustrates parents' desire for children with avid eating behaviour to develop a healthy lifelong relationship with food. Although children with avid eating behaviour typically have high enjoyment of food, parents described using specific feeding strategies to nurture the development of healthy eating behaviour in children with avid eating.

Describing food in relation to child health was predominant in parents' narratives. Most parents discussed providing their child with a balanced and varied diet, comprising both nutritious and non-nutritious food. Allowing children to eat a range of foods avoided food being labelled as 'good' or 'bad', which several parents described as being important for nurturing a healthy relationship with food. Parents described teaching their children about the impact of food on health by explaining the benefits of healthy eating and the nutrients within food: *"Calcium is really good for your bones. It'll make you really strong" (Ppt 8)*. Some parents also informed their child about the negative consequences associated with certain eating behaviours: *"If you eat too much cake, you might feel a bit sick" (Ppt 12)*. However, discussions about the relationship between food and weight were avoided, and this was particularly important for several parents due to their own experiences with food and weight: *"We don't talk about fat … I don't want her to develop that sort of complex—I grew up in a household with a mother who was obsessed with weight, dieting … I don't want to put that on my daughter" (Ppt 7)*. Moreover, several parents described encouraging children to recognise their own satiety signals: *"we've always tried to instil that, "You know when your tummy's full, and if your tummy's full then you can stop eating," which she does" (Ppt 8)*. However, parents' responses indicated that granting too much autonomy is less appropriate for children who have poor satiety responsiveness.

Another strategy that many parents used to encourage a healthy and balanced diet in the context of their child's avid eating behaviour was monitoring their child's food consumption throughout the day: *"If he's actually had a good amount of vegetables or fruit that day, then I'm quite happy to give him a little bit of a high fat or a sugary snack. But if I feel like he's kind of not had enough fruit, or if he's eaten way too much, then he probably needs a balance of something" (Ppt 4)*. Thus, to ensure children had a balance of foods, most parents offered a healthier alternative when children asked for a snack. This strategy was effective for some parents, with children either accepting the healthier alternative or declining a snack altogether: *"[I] try and offer them an alternative, something that's not as bad … I explain to them like, "You've already had a chocolate. You need to pick something different," generally, they'll understand that, and they'll accept that" (Ppt 3)*. However, encouraging children to have healthier snacks was sometimes met with resistance. For example, children attempted to push boundaries, such as asking for a less healthy snack initially and bartering with parents to have the snack they wanted: *"he'll come and say, "Can I have five biscuits?" So he'll haggle with me. And I'm like, "No, you can have two." And he's like, "Four?" And he'll start going lower, so I usually tend to give him two and I say, "Well if you eat them, then you can have some more in a minute"" (Ppt 14)*. Parents described typically managing these situations by being persistent until a happy medium was reached. Another challenge that parents experienced was offering children a variety of food. Some parents found it challenging to accommodate their child's food preferences while still providing a variety of nutritious snacks, particularly because of children's frequent eating: *"I struggle quite a lot … I want to give her as many varied snacks as I can, but I just can't think what to give her … you want to make sure that they're kind of having something healthy … I wish there was a bit more variety that wasn't so sweet" (Ppt 8)*. While some parents overcame these concerns by reassuring themselves that they were doing their best, children's continuous requests for food impacted parents' ability to provide a varied diet.

Despite children with avid eating generally being responsive to food, and having low food fussiness, there were times when parents reported needing to encourage children to eat certain foods, such as novel and/or nutritious food, which are typically less preferred by all children. Thus, having an avid eating profile does not exempt children from food fussiness and food neophobia, albeit this is generally mild. Indeed, many parents described typically using encouragement-focused strategies, such as positive modelling, eating as a family, and prompts to try foods: *"You can't say you don't like it until you try it" (Ppt 2)*. These strategies were mostly described as effective for use with children with avid eating behaviour, likely because of these children's general acceptance and enjoyment of foods. Moreover, there was a clear narrative that parents were grateful for children having avid eating behaviour, rather than fussy eating behaviour, which was perceived to be more challenging: *"I think if I had a child who had a lot of problems with eating, I think I would find that really difficult … In fact, the only problem he has is he always wants to eat" (Ppt 1)*. Parents were appreciative of their child's *"good appetite" (Ppt 2)* since they consumed and enjoyed a variety of food, especially parents with experiences of children with fussy eating. Overall, while parents used strategies to support the development of healthy eating, these findings suggest that parents use specific feeding practices based on their children's eating behaviour.

3.4. Picking battles

This theme illustrates the complexity of parental feeding strategies used to manage avid eating behaviour. For example, while parents might have rules around eating occasions, they appear to often use coercive feeding strategies to manage situations where parenting energy is low. Thus, parents 'pick their battles' when feeding their child.

3.4.1. Knowing the rules

Parents reported that most children have a typical eating routine (i.e., a pre-determined number of meal and snacks at set times). While many parents did not explicitly describe their eating routine as a feeding strategy, it was apparent that many parents used routine as a strategy, or to facilitate other strategies, to manage their child's avid eating behaviour: "*We say to her, "Look, it'll be lunchtime in half hour, so we'll wait until then," and she'll wait" (Ppt 5)*. Findings showed that a routine was typically beneficial for managing children's eating and caused challenges when the routine could not be maintained, such as over a holiday period: *"The last Christmas we had, that routine was sort of out of kilter … she started asking for stuff when she wasn't hungry" (Ppt 5)*. Thus, these findings highlight the benefits of an eating routine to children, particularly for managing the insatiable hunger and food responsiveness that is manifest in avid eating behaviour.

Although eating occasions were generally anticipated by children with avid eating, some parents described experiencing challenges at mealtimes, such as children having poor concentration or wanting an alternative food. Thus, irrespective of children's high enjoyment of food, parents were still sometimes required to use feeding strategies to manage food refusal. To do this, parents described having 'rules' at mealtimes: *"That's what you've been given so that's what you'll eat" (Ppt 11)*. While mealtime rules were perceived to be effective, they often had a high cost to parenting energy due to children's persistence to get their own way. Some parents described a more flexible approach, providing children autonomy over their eating pace: *"We would just sort of put the food back in the kitchen and bring it out again later … "If you're not going to eat it now, have it when you're ready." … which seemed to work quite well" (Ppt 7)*. While this relaxed approach was often effective, possibly because parents had few concerns about the volume of food consumed by children with avid eating behaviour, it was an approach specific to mealtimes. Therefore, these findings indicate that parents can maintain a level of authority over their child's food consumption, while still allowing their child to have some autonomy over their food decisions. As described by Participant 10: *"if you are consistent in your boundaries and*

you hold your boundary, then they learn to operate within that."

3.4.2. Reducing parent burden

Parents described using coercive feeding practices to manage situations where they experienced high levels of personal burden, such as time constraints and stress. In these situations, parents often selected coercive feeding practices that were simple and effective to use with children with avid eating behaviour due to their high responsiveness to food. For example, many parents reported using food as a reward, such as providing a 'treat' food to reward children's good behaviour or to encourage food consumption, such as cleaning their plate or eating less preferred, but more nutritious, foods: "*they can't have their pudding if they don't eat their dinner … they can have fruit afterwards, but they can't have like chocolate mousse … They know that" (Ppt 3)*. Providing children with food as a reward was reported to be effective, possibly because of children's enjoyment of, and responsiveness to, palatable food. However, some parents felt guilty about using it as a feeding strategy: *"I feel bad … your meals shouldn't result in the pudding, and it shouldn't be a reward … I just think, sometimes, it is a bit of desperation. I'd rather try those things and get him to finish a meal" (Ppt 4)*. This illustrates how parents choose to 'pick their battles' when feeding children with avid eating behaviour. Another strategy that some parents used to manage their parenting burden was giving children food as a tool to occupy them, especially in situations where parental stress was high: *"if I'm just like, "I need 5 minutes," I'll give him a biscuit or a packet of crisps" (Ppt 14)*. While this strategy was perceived to be effective initially, it may have negative long-term consequences, such as children expecting to receive a snack, particularly for children with high food responsiveness: *"I was giving him a biscuit so I could go and get changed quickly and peacefully … he thinks it's a normal part of his routine. So it all triggered from that" (Ppt 14)*.

Many parents of children with avid eating behaviour also reported using food as an effective strategy to manage their child's emotions, particularly negative emotions, to improve their child's mood: *"If he's a little sad. … if he's had an accident of some sort, then yeah, we do offer something sweet to cheer him up" (Ppt 4)*. Specifically, some parents described giving their child food if they thought they were irritable as a result of hunger (e.g., *"hangry")* since children did not link their own emotions with feeling hungry: "*she knows that she's not happy but she can't work out why she's not happy … so I kind of have to break the cycle and just be like, "Would you like to have a snack?" … it will just kind of kick her out of her bad mood" (Ppt 8)*. While many parents did not discuss concerns about using food to soothe their child's emotions, some parents noted that they tried to avoid using it or avoided it entirely: *"We don't tend to do mood food … She gets cuddles instead" (Ppt 5)*.

4. Discussion

This study examined parents' experiences of feeding preschool children with avid eating behaviour, to explore how avid eating behaviour manifests, and to identify the key challenges faced by parents, the feeding strategies they use, and what strategies are perceived to be effective. Children's avid eating behaviour was found to manifest in high levels of food enjoyment and responsiveness to food, and low levels of food fussiness, which aligns with our findings from a large-scale survey (Pickard et al., 2023). While many children may experience some responsiveness to external food cues, food responsiveness is greater in preschool children with avid eating behaviour, compared to those with typical, happy, or avoidant eating behaviour profiles (Pickard et al., 2023). Fussy eating behaviour is also common in preschool aged children. However, children with avid eating behaviour have been found to have lower food fussiness, compared to those with typical or avoidant eating profiles (Pickard et al., 2023). Notably, some children's continuous asking for food did not equate to the volume of food they consumed, which is consistent with previous research showing that food responsiveness is positively associated with meal frequency but not meal size (Syrad et al., 2016). Moreover, our findings illustrate the complexity of avid eating behaviour, demonstrating the various triggers for children asking for food and, thus, the challenge parents often experience of knowing whether children are genuinely hungry. To manage the eating behaviours that characterise an avid eating profile, parents described using feeding strategies across three broad domains (control, structure, and autonomy support; (Vaughn et al., 2016). These feeding practices also satisfied parents' perceived feeding responsibilities and helped parents to nurture children's positive dietary habits and relationships with food.

Children's avid eating behaviour has been characterised by poor satiety responsiveness (Pickard et al., 2023) and a greater tendency to eat in the absence of hunger (Boutelle et al., 2014); behaviours both associated with greater child BMI (Kininmonth et al., 2021; Philippe et al., 2021). However, parents' perceptions of their children's satiety responsiveness in this study were mixed, with some parents perceiving that children could effectively regulate their own hunger and some describing that children experienced challenges with recognising when they were satiated. Parents who perceived their child to have good satiety responsiveness reported giving children autonomy over managing their fullness signals at mealtimes (e.g., to stop eating when their "tummy's full"). This strategy could also be beneficial for children with poor satiety responsiveness, by encouraging them to listen to their own satiety cues. However, parents may be reticent about giving their child this autonomy due to concerns that it could result in over-consumption of food or increase weight. It is also possible that some parents misinterpreted their child's satiety signals since some parents reported difficulty with determining whether children's hunger was genuine due to their high responsiveness to food cues. Given this, research that assesses children's actual food consumption and self-reported hunger is needed to elucidate how effectively hunger is regulated by children with avid eating behaviour. This will help to determine the effectiveness of parents' use of feeding strategies which encourage children to manage their own satiety.

To manage children's avid eating behaviour, many parents described controlling children's food consumption by monitoring and limiting the type, and amount, of food their children consumed. This aligns with findings from survey data which found that restriction of food for health and weight was greater for parents of children with avid eating behaviour than for parents of children with other eating behaviour profiles (Pickard et al., 2023). These strategies were perceived to be effective for managing children's insatiable hunger and poor satiety responsiveness and helped parents to ensure that children consumed a balanced diet. If children were not perceived to have consumed sufficient nutritious food, some parents reported offering children a healthier, alternative snack, to manage children's requests for energy-dense snacks. This strategy was often perceived by parents to be effective, possibly because of children's high acceptance of a variety of foods. Offering children healthier snacks could also improve children's diet quality. Indeed, research has shown that replacing snacks with healthier alternative increases children's nutritious food intake (Reale et al., 2018). Given that children with avid eating behaviour were reported to snack frequently, monitoring and limiting their snack intake appears useful for managing children's insatiable hunger, while also having the potential to improve children's consumption of nutritious food.

Managing children's continuous asking for food and high responsiveness to food cues was challenging for some parents. One feeding strategy that was perceived to effectively manage these characteristics was having a routine around meal and snack times, for example, when and how often children ate. This strategy often helped parents to distract and delay children's frequent requests for food. Providing structured mealtimes has been associated with better self-regulation (Frankel et al., 2018), lower emotional overeating (Jansen et al., 2022), and healthier weight outcomes (Hammons & Fiese, 2011). Therefore, the use of structure appears a useful strategy for feeding children with avid eating behaviour. However, findings also showed that the use of parental feeding practices differed between meal and snack times, such as parents

reporting using greater control over snack times, compared to mealtimes where parents did not typically perceive control to be required. One explanation for this was that parents perceived snack foods to have less sustenance than meal foods, which is consistent with previous research (Fisher et al., 2015). Indeed, most parents described allowing children to have additional food at mealtimes (e.g., second servings), whereas additional snacks were often limited unless they were perceived by parents to be nutritious (e.g., fruit). Thus, consistent with previous research (Loth et al., 2023), our study shows that parental feeding practices differ by the type of eating occasion. Further research is therefore needed to determine the effectiveness of specific feeding practices at meal and snack times, separately, for managing children's avid appetites.

An authoritative feeding approach, characterised by high control but also high warmth and responsiveness, was found to be effective for managing children's avid eating behaviour, combining sensitivity towards children whilst upholding reasonable nutritional requirements (Hughes et al., 2005). Consistent with previous research (Hubbs-Tait et al., 2008; Hughes et al., 2005), adopting an authoritative approach enabled many parents to achieve their goal of nurturing children's healthy dietary habits and relationships with food, using feeding practices that supported autonomy whilst maintaining control. For example, some parents described teaching children about nutrition and using reasoning about the healthfulness of foods to encourage children's consumption of nutritious foods and to reduce their consumption of high energy-dense foods. Given that an authoritative feeding style is associated with better diet quality (Jarman et al., 2022), it could be beneficial for children with avid eating behaviour. Moreover, parents nurtured a healthy relationship with food by avoiding discussions with children about the relationship between food and weight and by not labelling foods as 'good' or 'bad'. Qualitative research has shown that appropriately initiating conversations about weight and limiting food intake is an area of parental concern and uncertainty (Schuster et al., 2019). Since weight-related conversations are associated with greater disordered eating behaviour and child overweight and obesity (Berge et al., 2013; Lydecker et al., 2018; Neumark-Sztanier et al., 2010), avoiding these discussions with pre-schoolers with avid eating behaviour who are at greater risk for the development of obesity is important for their ongoing healthy development. Overall, these findings support and extend previous qualitative research, illustrating that feeding practices are related to parental goals to meet children's nutritional needs, whilst also considering their children's psychosocial development within the context of eating (Schuster et al., 2019).

Many parents reported the use of two controlling feeding strategies: emotional feeding and using food as a reward. This is consistent with our findings from survey data which showed that parents of children with avid eating behaviour report greater use of food for emotion regulation than parents of children with typical, happy, or avoidant eating behaviour profiles (Pickard et al., 2023). In the present study, emotional feeding and using food as a reward were perceived by parents to have short-term effectiveness, but they could be potentially problematic in the development of children's avid eating behaviour. Indeed, emotional overeating is largely shaped by a child's environment (Herle et al., 2018) and so parents' use of emotional feeding could be contributing to the high levels of emotional overeating which were reported by parents (e.g., eating more in response to boredom) and is prevalent in an avid eating behaviour profile (Pickard et al., 2023), and which is associated with higher child adiposity (Kininmonth et al., 2020). Additionally, research has demonstrated reciprocal relationships between greater parental use of food as a reward and higher emotional overeating tendencies (Jansen et al., 2020; Kininmonth, Herle, Haycraft, et al., 2023). Therefore, using food as a reward could be problematic for children with avid eating behaviour who are particularly susceptible and responsive to palatable food cues and have greater emotional overeating. Taken together, these novel findings indicate that emotional feeding and using food as a reward are perceived by parents to be effective feeding strategies for managing challenging feeding interactions with children with avid eating behaviour, such as in situations when parental burden is high. However, the use of these controlling feeding strategies could contribute to, and potentially exacerbate, the development of children's avid eating behaviour, suggesting they might not be appropriate feeding strategies for children with more avid appetites.

4.1. Implications

The current findings advance previous research by illustrating the various feeding practices which are used to manage children's avid eating behaviour. Adopting an authoritative feeding approach and using responsive and structure-related feeding practices were perceived to be effective for helping children with avid eating behaviour to develop a positive relationship with food. Since these feeding strategies are associated with nurturing healthy eating (Haines et al., 2019), they could be an important target for interventions to support parents with feeding children with avid eating behaviour. Additionally, providing children with a balanced diet through careful monitoring and limiting, whilst ensuring that palatable foods are not forbidden, appear effective for managing children's poor satiety responsiveness and high food responsiveness. These findings highlight the nuance between complete restriction of food and careful limiting of food, which is an important distinction for parents of children with avid eating behaviour. Furthermore, emotional feeding and using food as a reward should be avoided for children with avid eating behaviour because these practices are likely to exacerbate appetitive traits such as emotional overeating and food responsiveness (Kininmonth, Herle, Haycraft, et al., 2023). Overall, these findings illustrate that parents use specific feeding practices to manage their child's appetitive traits. Given that an avid eating behaviour profile is common in preschool children (22%; Pickard et al., 2023), it is important to develop tailored feeding interventions which target parental feeding practices, to support parents of pre-schoolers with avid eating behaviour. Individual differences in childhood obesity and eating behaviours have been found to be partially shaped by genetic effects (Herle et al., 2020). In this context it is important to highlight that interventions supporting parental feeding have the potential to mitigate some of the child's genetic liability for higher weight (Herle et al., 2022).

4.2. Strengths and limitations

This study has many strengths including the generation of novel and rich data to provide an in-depth understanding of parents' subjective experiences of feeding preschool children with avid eating behaviour. Furthermore, reflexive thematic analysis is a rigorous and flexible approach that allows parents' experiences to be prioritised. However, there were also limitations. No parents in this sample reported having concerns about their child's weight. Research has demonstrated the complex relationships between parental feeding practices and infant BMI (Burnett et al., 2022) and while BMI data was not collected for children in this study, research that examines children's BMI is needed to determine whether parents' experiences of feeding children with avid eating vary according to children's weight. It is also important to consider the current findings and future intervention guidance within the broader context of child health, such as improving diet quality, supporting children's development, and facilitating their healthy relationship with food, rather than solely focusing on weight-related outcomes. For example, research has shown that structure-related feeding practices, such as modelling and prompting, are positively associated with preschool children's diet quality (Burnett et al., 2021; Jarman et al., 2022). Moreover, parental feeding behaviour has been shown to influence children's body esteem. For example, adopting a weight neutral parenting approach to healthy eating and physical activity has been associated with greater body satisfaction in children (Hill et al., 2020), which is important given that low body esteem is associated with

unhealthy weight control behaviours (e.g., fasting, laxative use), dieting and binge eating in adolescents (Neumark-Sztainer et al., 2006). Despite our attempts to recruit a diverse sample, the applicability of the findings to other populations is limited since the sample comprised mostly females of White ethnicity, with low levels of food insecurity. While the relationship between food insecurity and avid eating behaviour is not fully clear, research has shown that food insecurity is associated with avid eating behaviour (Fisher et al., 2022; Pickard et al., 2023). Because of the high levels of food security in the current sample, parental experiences reported here may be different from feeding practices used by parents with food insecurity. Indeed, research has shown that parents experiencing food insecurity often report poorer mental health (Cain et al., 2022), greater concerns about child overweight and use of controlling feeding practices (Adams et al., 2020), and structural constraints, such as limited time and poorer access to healthy food; all of which can influence feeding behaviour (Arlinghaus & Laska, 2021). Additionally, since only 15% of the parents who were invited to participate took part, the current findings may underestimate the challenges experienced by parents of children with avid eating behaviour due to self-selection bias. Thus, the findings may not generalise to families experiencing greater challenges with their children's avid eating behaviour or to those from underrepresented communities. Finally, it is important to acknowledge that subjectivity will have influenced the collection and interpretation of data. Nonetheless, reflexive thematic analysis cannot be conducted in a 'theoretical vacuum' (Braun & Clarke, 2021), and since the lead researcher recognised their positionality and engaged reflexively with the data, subjectivity should have a minimal impact on the current findings.

5. Conclusion

This is the first study to examine parents' experiences of feeding a preschool child who has been identified as having an avid eating behaviour profile. The findings uniquely demonstrate the complex ways in which children's avid eating behaviour manifests, and the strategic and creative strategies that parents use to manage their child's avid eating behaviour. Responsive and structure-related feeding practices, and an overarching authoritative feeding style, appear useful for managing children's avid eating behaviour. Parents reported using a variety of feeding practices across a range of domains, including coercive control, structure, and autonomy support (Vaughn et al., 2016). These feeding practices were situation-dependent, such as varying behaviours based on parent mood, the context (i.e., meals versus snack times), and children's eating behaviour. This suggests a need for research which examines feeding interactions as they occur (e.g., by using Ecological Momentary Assessment) to better understand the complex feeding interactions for parents of children with avid eating behaviour and to inform tailored interventions which target parental feeding practices, to support the development of children's healthy eating behaviour.

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Ethical statement

Aston University Health and Life Science Research Ethics Committee provided ethical approval (#HLS21053). Participants provided informed consent for their participation.

CRediT authorship contribution statement

Katie L. Edwards: Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Jacqueline Blissett:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Helen Croker:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Claire Farrow:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Moritz Herle:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Alice Kininmonth:** Writing – review & editing, Methodology, Conceptualization. **Clare Llewellyn:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Abigail Pickard:** Writing – review & editing, Methodology, Conceptualization. **Emma Haycraft:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

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