Understanding the use of food-parenting practices: the role of maternal weight, maternal cognition and experience, and online media

by

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A thesis submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy in Engineering

Warwick Manufacturing Group

University of Warwick

September 2022

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Acknowledgements

I would like first sincerely thank Professor Caroline Meyer and Dr Eleni Karasouli. Thank you for inviting me for an interview for this PhD. I will be forever appreciate you providing me with this opportunity and opening many doors for me.

To my first supervisor, Professor Caroline Meyer, thank you does not start to cover how grateful I am to have had you as my supervisor. Your time, guidance, support, and solutions to the meltdowns I have experienced never wavered. Thank you for motivating me and giving me a (renewed) sense of purpose with this research when it was needed the most. Thank you for the teas, coffees, hot chocolates, and food over the years.

To my second supervisor, Dr Eleni Karasouli, thank you for your time reviewing endless drafts of work, for being a sounding board, and your guidance throughout the PhD.

Thank you to my collaborators, Dr Lukasz Walasek and Dr Emma Shuttlewood, for their time, advice and help on various aspects of this thesis.

The PhD experience would not have been the same without my peers undertaking research at WMG. Thank you, you are lifelong friends.

Thank you to the participants of the research. Without them, parts of this thesis would not have been possible.

To my wider family, yes, I have finished school now, although I don't think the learning will ever stop.

Mum and Dad, thank you for your endless encouragement and support since my first day at school. Dad, your reminders to read the question twice and check that I have written my name at the top of exam papers have paid off. I hope I have made you both proud.

Rohil, thank you for your undeniable support. I could not have done this PhD without you.

Declaration and inclusion of material from a prior thesis

The author declares that the research included in this thesis is her own work, and has not been previously submitted for examination at any other university.

Aspects of the work presented in this thesis have been published in peer-reviewed journals and are listed under '*Publications presented in this thesis*'.

With the exception of the author's doctoral supervision team (Professor Caroline Meyer and Dr Eleni Karasouli), the following individuals have provided feedback on the studies included in this thesis:

Dr Emma Shuttlewood (Clinical Psychologist, University Hospital Coventry and Warwickshire NHS Trust)

Dr Lukasz Walasek (Associate Professor, Department of Psychology, University of Warwick)

Publications presented in this thesis

The author has published parts of this thesis:

Chapter 1

Patel, C., Karasouli, E., Shuttlewood, E., & Meyer, C. (2018). Food parenting practices among parents with overweight and obesity: A systematic review. *Nutrients*, 10(12), 1966.

Chapter 3

Patel, C., Shuttlewood, E., Karasouli, E., & Meyer, C. (2022). Mothers' experiences of their own parents' food parenting practices and use of coercive food-related practices with their children. *Appetite*, 106078.

Chapter 5

Patel, C., Walasek, L., Karasouli, E., & Meyer, C. (2022). Content and validity of claims made about food parenting practices in United Kingdom online news articles. *International Journal of Environmental Research & Public Health*, 19, 5053.

Chapter 6

Patel, C., Shuttlewood, E., Karasouli, E., & Meyer, C. Exploring online discussions about child feeding practices on a parent-targeted social media platform. Under consideration by *Maternal & Child Health*

Presentations derived from this thesis

Poster presentations

Patel, C., Karasouli, E., & Meyer, C. *Parent-Child Feeding Practices among parents: A systematic review protocol.* Poster presentation delivered at the WMG Doctoral Conference, UK, June 2017.

Patel, C., Karasouli, E., Shuttlewood, E., & Meyer, C. *Child-Feeding Practices among Parents with Overweight and Obesity: A Systematic Review.* Poster presentation delivered at the Midlands Health Psychology Network Conference, UK, May 2018.

Patel, C., Karasouli, E., & Meyer, C. *How mothers with overweight and obesity remember eating interactions as a child is linked to their own food-related parenting practices.* Poster presentation delivered at the International Conference on Eating Disorders, USA, March 2019.

Oral presentation

Patel, C., Karasouli, E., Shuttlewood, E., & Meyer, C. *Results of a preliminary analysis of eating psychopathology and food-related parenting practices among mothers attending a tier 3/4 specialist weight management service.* Oral presentation delivered at the British Obesity & Metabolic Surgery Society Annual Conference, Belfast, January 2019. Abstract published in *Obesity Surgery* (Vol. 29, pp. S9-S9).

Thesis summary

This thesis examines the impact of several factors on the use of food parenting practices (FPPs). These include maternal weight, maternal cognitions and experiences and online media. It contains one systematic literature review, three studies that employed quantitative methodologies, and two studies that used qualitative methods. In chapter 1, an overview of the importance of researching parental weight, eating behaviours, and FPPs is presented in addition to a systematic literature review that examined FPPs among parents by weight status. In chapter 2, an analysis of mothers' own childhood experience of FPPs, eating behaviours, and use of FPPs with their own child is presented that analysed data by maternal weight status. Chapter 3 presents the relationships between mothers' own childhood experience of FPPs, current eating behaviours and current use of coercive FPPs with their own child. In chapter 4, the relationships between mental health symptoms, food intake self-efficacy, and use of coercive FPPs with their own child among mothers with overweight/obesity is presented. In chapter 5, a qualitative content analysis and evaluation of claims made about FPPs in news media articles is presented. In chapter 6, posts created by users on the parenting-focused online platform, Mumsnet, were qualitatively analysed from a 1-year period to ascertain the topics and concerns raised by users that related to FPPs. Chapter 7 comprises a general discussion of findings, implications of research findings, suggestions for further research, and contribution to the food parenting practice and eating behaviour research field.

Keywords: Food parenting practices; Parents; Mothers; Children; Eating behaviours; Media

Abbreviations

BED	Binge Eating Disorder
BMI	Body Mass Index
BST	Behavioural Susceptibility Theory
CFPQ	Comprehensive Feeding Practices Questionnaire
CFQ	Child Feeding Questionnaire
CFS	Chatoor Feeding Scale
CFSQ	Caregiver Feeding Styles Questionnaire
CI	Confidence Interval
DEBQ	Dutch Eating Behaviour Questionnaire
ED	Eating Disorder
EDEQ	Eating Disorder Exam Questionnaire
FPP	Food Parenting Practice
FSQ	Feeding Strategies Questionnaire
HADS	Hospital Anxiety Depression Scale
HCP	Health Care Professional
ICC	Intraclass Correlation Coefficient
MioH	Meals in our Household
NHS	National Health Service
NR	Not Reported
OR	Odds Ratio
PFQ	Pre-schooler Feeding Questionnaire
PFSQ	Parental Feeding Style Questionnaire
PSEAS	Parenting Strategies for Eating and Activity Scale

rCFPQ	Retrospective Comprehensive Feeding Practices Questionnaire
RQ	Research Question
SPSS	Statistical Package for the Social Sciences
TSFFQ	Toddler Snack Food Feeding Questionnaire
UK	United Kingdom
WELQ	Weight Efficacy Lifestyle Questionnaire
WHO	World Health Organization

Chapter 1: General Introduction

1.1 Chapter introduction

This chapter will present an overview of the research literature related to important influences on the use of food parenting practices (FPPs) that are examined in this thesis. Included as part of this chapter is a published systematic literature review. The chapter concludes with a summary of the research, the overall aim of this thesis, and a list of specific research questions that are covered. These are signposted to where these are addressed in this thesis.

1.2 An overview of overweight and obesity

The World Health Organization (WHO) define overweight and obesity as the accumulation of excess body fat that can impact health (WHO, 2021). In the United Kingdom (UK), adult body mass index (BMI) is an assessment of one's weight (kg) and height (m) (BMI = kg/m^2). For adults, a BMI between 18.5 and 24.9 is indicative of a healthy weight; a BMI between 25 and 29.9 indicates overweight, and a BMI over 30 indicates obesity (NHS, 2019a).

Obesity is a multifactorial, noncommunicable disease where environmental factors and genetics have a role in its development (Flores-Dorantes et al., 2020). Although genetics are influential on body weight (Flores-Dorantes et al., 2020, Wardle et al., 2008), the Behavioural Susceptibility Theory (BST) proposes that genetically-based appetitive traits interact with environmental influences leading to overeating and increased weight (Carnell & Wardle, 2008, Llewellyn & Wardle, 2015).

1.3 Childhood risk of overweight and obesity

Since 1975, the global prevalence of childhood and adolescent overweight and obesity has quadrupled (WHO, 2022), and approximately 20% of children leaving primary school (10 – 11 years of age) in the UK are now classified as obese (NHS, 2020).

A child's weight status is associated with that of their parents (Figure 1), with around a quarter of children with obesity having mothers with obesity (NHS,

2020). Longitudinal studies have established that the risk of overweight in child- and adulthood increases with parents' weight status (Hawkins et al., 2009, Moschonis et al., 2022, Whitaker et al., 2010). A more recent analysis of several sources of data collected in England by the Office of National Statistics (ONS) reports that as of 2020, children of mothers with obesity are over 50% less likely to have a healthy weight when compared to children with mothers with a healthy weight (NHS, 2020) (Figure *1*), echoing previously identified results.

Figure 1: Parents of children with overweight/obesity (NHS, 2020)
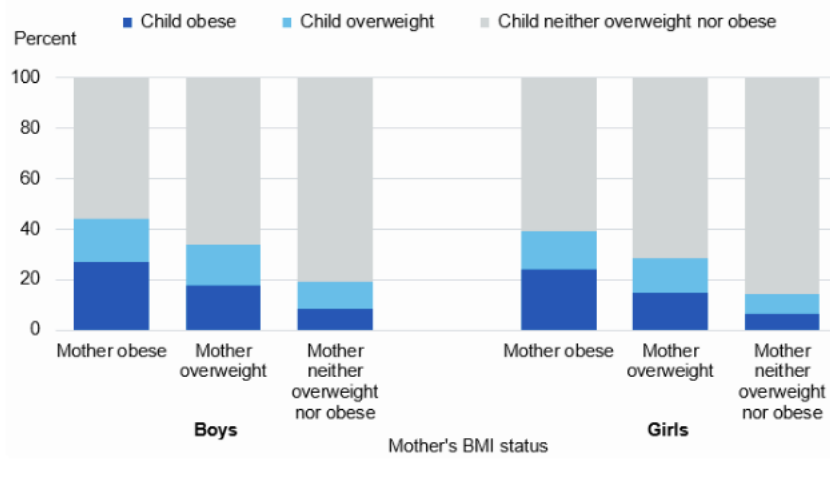
1.4 Why is this important?

Such information is concerning as an overweight or obese weight status is related to a greater risk of development of adiposity-related conditions such as cancer (Fang et al., 2018), type II diabetes mellitus (Abbasi et al., 2017), cardiovascular diseases and complications (Sommer & Twig, 2018, Tan et al., 2021), obstructive sleep apnoea (Erridge et al., 2021), and eating disorders (Balantekin et al., 2021, Rancourt & McCullough, 2015, Villarejo et al., 2012), alongside a range of psychosocial impacts such as poorer health-related quality of life (Stephenson et al., 2021), depression (Frank et al., 2022), and poor self-esteem (Rankin et al., 2016).

1.5 Parental influences on child dietary behaviours and weight status

Adult- and child obesity is widely believed to be a consequence of an imbalance between energy intake and expenditure (Davison & Birch, 2001). From birth, children rely on their parents to provide a nutritional diet for healthy development. For this reason, parents are often referred to as gatekeepers to their children's food environment.

1.5.1 Food parenting practices

Food parenting practices (FPPs), in particular, are influential on children's dietary behaviours and weight status. FPPs are defined as goal-oriented behaviours used by parents to influence their children's food consumption and eating behaviours (Vaughn et al., 2016).

Due to inconsistencies in the conceptualisation of FPPs, frameworks outlined by O'Connor et al. (2017) and Vaughn et al. (2016) posit three overarching domains of FPPs: coercive control, structure and autonomy support (Figure 2).

Figure 2: Categorisation of FPPs (used with permission from Vaughn et al., 2016 (Appendix A))
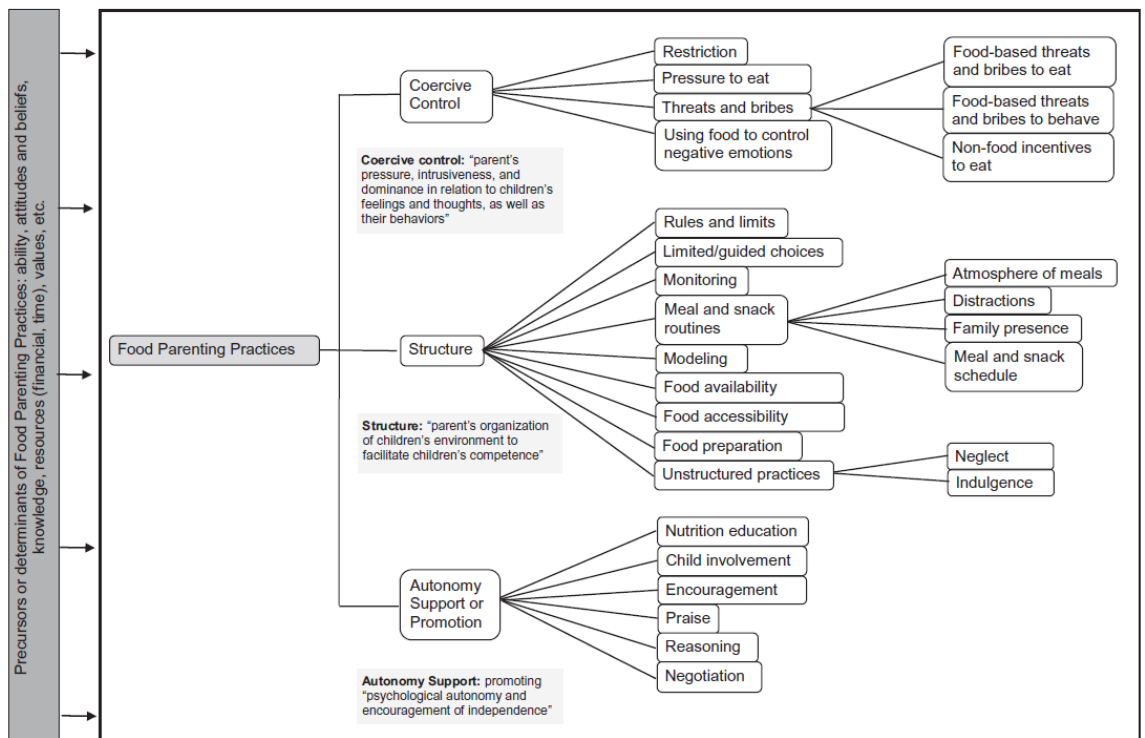
1.5.1.1 Coercive control

The first domain refers to FPPs that are controlling, parent-centred actions and behaviours used to serve the feeding goals and desires of parents without the consideration of the child's emotional or psychological needs (Vaughn et al., 2016). This group of FPPs are seen as parental attempts to dominate, pressure and inflict their will on the child (Vaughn et al., 2016).

Coercive control FPPs include restriction, pressure to eat, threats and bribes and using food to control negative emotions.

1.5.1.2 Structure

The second domain refers to FPPs that are non-controlling and non-coercive and reflect the parental organisation of the child's food environment to facilitate the development and maintenance of certain food consumption and dietary behaviours.

Structure FPPs include rules and limits, limited/guided choices, monitoring, meal and snack routines, modelling, food availability, food accessibility, food preparation and unstructured practices.

1.5.1.2 Autonomy support

The third domain refers to FPPs that are also non-controlling and non-coercive but aim to support child development of independence of food consumption and dietary behaviours.

Autonomy support FPPs include nutrition education, child involvement, encouragement, praise, reasoning, and negotiation.

1.5.2 Use of food parenting practices

The reasons why parents use certain FPPs remains a key topic of interest for the eating behaviour research field and is important to address for the development of efficacious interventions for healthy child development.

In their theory of domain-specific parenting that uses obesity proneness as an example, Costanzo & Woody (1985) posit that parental control is imposed on areas of child development when parents struggle to regulate their own behaviour. When put into the context of the FPP research literature, some

evidence suggests that parents are likely to engage in coercive control FPPs when parents have concerns with their own eating behaviours and weight (e.g., Blissett & Haycraft, 2011, Blissett et al., 2006, Francis & Birch, 2005a). It seems plausible then, that parents with overweight and obesity may be concerned with their weight status and eating behaviours, and therefore engage in more frequent use of coercive FPPs. This is concerning as increased levels of parental control can negatively impact children's development of self-regulation of food intake based on biological, innate cues of hunger and satiety (Birch & Fisher, 1998), and consequently, childhood weight (Ruzicka et al., 2020).

1.5.3 The need for clarity about parental weight status and food parenting practices

Generally, the research literature indicates that use of FPPs providing structure and autonomy support for children have positive outcomes on children's food consumption and eating behaviours (Finnane et al., 2017, Palfreyman et al., 2014, Burnett et al., 2022).

In contrast, studies investigating FPPs involving coercive practices show that such FPPs are associated with less healthy food consumption, increased BMI and long-term development of maladaptive eating behaviours (Beckers et al., 2021, Faith et al., 2004, Shloim et al., 2015, Yee et al., 2017).

Despite parental BMI being a known predictor of child weight and BMI, one of the limitations of research is the exclusion or statistical control of parent BMI instead of direct examination of this demographic variable. As a result, little is known, and research remains scant about whether use of FPPs differs by parent BMI/weight status. Therefore, an essential first step is to conduct a literature review to identify and review research into the types of FPPs among parents in relation to their weight status.

1.6 Food parenting practices among parents with overweight and obesity: A systematic review

This systematic review has been published as: Patel, C., Karasouli, E., Shuttlewood, E. & Meyer, C. (2018). Food Parenting Practices among Parents with Overweight and Obesity: A Systematic Review. *Nutrients*, 10*(12)*, 1966.

Minor formatting changes have been made to ensure consistency with the rest of this thesis.

1.6.1 Aims of the literature review

This literature review will introduce key constructs of food parenting practices (FPPs) that are examined in the following chapters of this thesis. The systematic literature review aimed to identify the FPPs used among parents by weight status.

1.6.2 Introduction

A child is ten to twelve times more likely to have obesity when they have two parents with obesity, compared to having two parents with healthy weight (Reilly et al., 2005, Whitaker et al., 2010). In addition, children are developing obesity earlier (Johnson et al., 2015), increasing the risk of developing adiposity-related conditions later in life, including type II diabetes mellitus, cardiovascular diseases, sleep apnoea, problems with physical function, and several types of cancers (Guh et al., 2009, Hemminki et al., 2011, Lang et al., 2008, Resta et al., 2001).

Not only is parental obesity linked to obesity in their children, but it is also implicated in the aetiology of eating disorders (EDs), such as bulimia nervosa (Fairburn et al., 1997), binge-eating disorder (BED) (Hudson et al., 2007), and anorexia nervosa (Moskowitz & Weiselberg, 2017). For example, patients with anorexia nervosa have cited that living with a family member with obesity was one of the causes of the development of their ED (Tozzi et al., 2003).

Both obesity and EDs present in a significant proportion of young people. In 2016, 41 million infants and young children were overweight or obese globally (WHO, 2017). More specifically, in the United Kingdom,

approximately one-third of two to fifteen-year-old children have overweight or obesity (Public Health England, 2015). ED prevalence is also high. Approximately five percent of children aged thirteen to eighteen will suffer from anorexia nervosa, bulimia, or binge eating disorder, with lifetime prevalence rates of 0.9%, 1.5%, and 3.5% among women, and 0.3%, 0.5%, and 2.0% among men, respectively (Health & Social Care Information Centre, 2015, Hudson et al., 2007).

BED is the most prevalent eating disorder associated with obesity among adolescents and adults (Health & Social Care Information Centre, 2015, Hudson et al., 2007), where the transmission of disordered eating from parent to child is demonstrated in research. For example, parents with obesity, who report BED behaviours, are significantly more likely to report overeating and binge-eating behaviours in their children when compared to parents without BED behaviours (Lydecker & Grilo, 2017a). Additionally, from a large sample of fourteen-year-olds ($n = 6,140$), maternal history of ED (anorexia and/or bulimia nervosa) predicted higher levels of body dissatisfaction and shape and weight concern among girls, and dieting among boys (Micali et al., 2015).

A child's diet and preferences for food are influenced by their food environments, including the eating behaviours of their parents (DeJesus et al., 2018, Jahnke & Warschburger, 2008, Savage et al., 2007, Vereecken et al., 2004, Zarychta et al., 2019). This influence is strongest in early childhood, where parents act as gatekeepers and role models around food (McCaffree, 2003, Wardle et al., 2005). Therefore, one important approach to reducing obesity in childhood and preventing the development of disordered eating behaviours is to understand and positively influence the modifiable determinants of healthy eating behaviours early in life (Haines et al., 2019, Savage et al., 2007, Skouteris et al., 2012).

Food parenting practices (FPPs) are one of the environmental and modifiable factors associated with the development of overweight and obesity in childhood (Skouteris et al., 2012). FPPs are behaviours used by parents to

influence their child's food intake as well as their behaviours, attitudes, or beliefs toward food (Blissett, 2011, Larsen et al., 2015, Shloim et al., 2015, Vaughn et al., 2016).

Although the relationship between FPPs, child weight and dietary intake is complex and bidirectional (Jansen et al., 2014), one known predictor of children's Body Mass Index (BMI)/weight is parental BMI (Danielzik et al., 2002, Maffeis et al., 1998, Strauss & Knight, 1999, Ziauddeen et al., 2020). This association can be attributed to genetic predispositions and environmental factors (Birbilis et al., 2013, Laitinen et al., 2001, Schnurr et al., 2020), including FPPs. Indeed, parents have a vital role in modelling food choices and shaping their children's food preferences (Anzman et al., 2010, Scaglioni et al., 2011, Yee et al., 2017).

Due to recognised inconsistencies in the terminology and definitions of FPPs, a working group of experts critically appraised the FPP literature and devised a content map to guide future research and assist with study comparisons (Vaughn et al., 2016). The appraisal resulted in three overarching FPP constructs: coercive control, structure, and autonomy support/promotion (Vaughn et al., 2016). Coercive control involves FFPs such as restriction, pressure to eat, food-based threats and bribes, and the use of food to control negative emotions (Vaughn et al., 2016). Structure involves FPPs such as rules and limits around food, limiting/guiding food choices, monitoring, meal and snack routines, modelling, food availability, food accessibility, food preparation, and unstructured practices (Vaughn et al., 2016). Finally, autonomy support or promotion involves FPPs, such as nutrition education, child involvement, encouragement, praise, reasoning, and negotiation (Vaughn et al., 2016). For the purpose of this literature review, the FPP map was adopted to guide the description of the results.

FPPs that support child autonomy are non-directive, for example, encouraging balance and variety around food and providing nutritional education (Musher-Eizenman & Holub, 2007). Such FPPs are believed to stimulate healthy food intake and prevent the consumption of unhealthy foods

(Larsen et al., 2015, Yee et al., 2017). Conversely, coercive FPPs are directive, representing parents' desires and goals, such as pressure to eat, restricting unhealthy or snack foods and using food-based threats and bribes (Birch et al., 2001).

Although well intended, the latter type of FPPs, are associated with increased childhood weight and obesogenic eating behaviours, such as emotional eating and overeating (Rodgers et al., 2013, Jansen et al., 2020). For example, using food-based threats affects BMI in adulthood (Puhl & Schwartz, 2003). This is because the reward status placed on the restricted food(s) increases the food's affective value (Birch et al., 1980) and desirability (Ventura & Worobey, 2013), thus making them more likely to be eaten in excessive amounts (Baughcum et al., 1998). Pressure to eat and food restriction are also examples of FPPs that are significantly and positively associated with disordered eating among adolescent boys (Loth et al., 2014). Furthermore, retrospective research conducted among adults indicates a heightened preference for foods that were restricted in childhood and higher levels of emotional overeating in adulthood (Puhl & Schwartz, 2003, Tan et al., 2016b), increasing the risk of binge-eating and bulimia (Allen et al., 2008, Waller & Osman, 1998).

Additionally, using food to control negative emotions is another coercive FPP associated with increased child BMI (Stifter et al., 2011) and eating in the absence of hunger (Blissett et al., 2010). Adults recalling their own parents' use of food to control their behaviours as a child via reward or punishment have also reported higher levels of binge-eating and dietary restraint (Puhl & Schwartz, 2003). Further, pressure to eat beyond satiety is detrimental to a child's ability to acknowledge and react appropriately to hunger and fullness cues which in turn influences food intake (Carper et al., 2000).

Extensive research also shows that parents who are concerned with their own weight and eating behaviours are likely to exert coercive FPPs when feeding their children (Blissett & Haycraft, 2011, Blissett et al., 2006). However, later in life, the use of such FPPs are associated with children's less healthy eating

behaviours and disordered eating (Galloway et al., 2006, Kröller et al., 2013, Loth et al., 2014). Studies such as these suggest that parents may unknowingly promote disordered eating and subsequent excess weight gain in their child/ren via the use of unhelpful FPPs and eating behaviours (Clark et al., 2007). Furthermore, since the risk of obesity is greater for children with one or more parents with obesity, identifying the particular FPPs used by parents with overweight/obesity could help inform the development of family-based interventions.

In order to understand the determinants of FPPs, Birch and Davison's (2001) model of multiple interactions proposes that there are numerous familial influences on the use of FPPs. The influences described in the model are parental weight status, parental eating behaviours, child weight status, and child eating behaviours (Birch & Davison, 2001). Although the model does not acknowledge all the environmental factors associated with the development of childhood obesity, the model is appropriate for exploring the influences at the parental level, such as parental weight, on the use of FPPs.

In summary, the FPPs currently used by parents with overweight and obesity are yet to be identified despite parental BMI being associated with the development of eating disorders and a known predictor of child weight/BMI. Therefore, this review aims to systematically identify and review the types of parental FPPs used by parents with overweight and obesity (defined by a BMI ≥ 25.0; (WHO, 2016)). To aid cross-study comparisons, minimise conflicting findings and move towards consensus in measurement, the results are presented under Vaughn et al.'s (2016) three overarching food parenting practice constructs of the content map.

1.6.3 Methods
1.6.3.1 Search strategy
Potential studies were identified from three relevant electronic databases: Web of Science, PubMed, and PsycINFO. Published, peer-reviewed articles that examined FPPs were included. The reference lists of all relevant articles were hand-searched to further identify any additional studies that may have

not been captured by the searches (Horsley et al., 2011). There was no limit placed on the publication date. Database searches were initially conducted in January 2017 and updated on 7 September 2018.

1.6.3.2 Selection criteria

The inclusion of studies was based on the PRISMA checklist's PICOS (Participants; Interventions; Comparators; Outcome and Study design) taxonomy (Moher et al., 2009). Participants: Studies were eligible if they were conducted with participants who identified themselves as parents, primary caregivers, or legal guardians. Participants had to have been grouped by BMI status or equivalent (e.g., healthy weight, overweight, or obese). Studies focussing on infant feeding and studies including participants with medical conditions or disabilities that may influence FPPs and/or weight (e.g., Prada-Willi syndrome, Anorexia Nervosa, Binge Eating Disorder, Type I Diabetes Mellitus) were excluded. Interventions: Studies needed to have used a measure of FPPs, e.g., the Child Feeding Questionnaire. Comparators: Studies were eligible where there was a comparison group of parents. Outcome: Studies needed to have considered a relationship between parental BMI and FPPs. Study design: Studies conducted quantitatively (cross-sectional, laboratory-based observation, longitudinal) were included. Peer reviewed studies written in English were considered eligible. Individual case studies, prospective and protocol articles were excluded. Studies involving FPP intervention or manipulation were also excluded as these studies do not capture naturalistic FPPs. Furthermore, participating in an intervention study can raise awareness of participants' unhealthy behaviours (MacNeill et al., 2016).

1.6.3.3 Article screening

The most recent studies identified from the search were published in 2018 and the oldest study was published in 1969. The titles and abstracts were screened for potential inclusion by one author (CP). A second reviewer (DM: A PhD researcher with eating behaviour expertise) also independently assessed each potential article for inclusion to determine whether it could be

excluded on the basis of the inclusion/exclusion criteria. Disagreements were discussed and resolved by consensus (Tacconelli, 2010). A third reviewer (CM) was consulted where there was uncertainty. Full texts of potentially eligible studies were then screened by one reviewer (CP) and verified by the second (DM).

1.6.3.4 Data extraction and synthesis

Data from each article were extracted and tabulated to present the study information. A data extraction form was developed according to the Centre for Reviews and Dissemination guidance (Tacconelli, 2010). The review and narrative synthesis was guided by the PRISMA statement for systematic reviews (http://prisma-statement.org/prismastatement/Checklist.aspx) (Moher et al., 2009), and was registered on the PROSPERO database (CRD42018108891). A meta-analysis was not appropriate due to the heterogeneity between studies.

1.6.3.5 Quality assessment

Articles were scored on their methodological quality, internal and external validity using the NICE quality appraisal for quantitative studies checklist (NICE, 2012). It has been used in previous systematic reviews (Kelly et al., 2016, Windle et al., 2010) and was adapted for the purposes of this review. The scoring for each criterion in the checklist ranged from ++ (when all or the majority of criteria were fulfilled), + (the criteria have been partially fulfilled), to - (few or none of the criteria have been fulfilled). Due to the limited number of studies revealed by the review, no publications were excluded from the review based on quality scoring. Study quality was also independently assessed by the second reviewer to examine possible risks of study bias, as suggested by Moher et al. (2009). Publication bias was not assessed due to heterogeneity among studies. Inter-rater reliability was in the acceptable range, intraclass correlation coefficient (ICC = 0.87), and was assessed using a two-way mixed, consistency, average-measures ICC to examine the degree of agreement in study ratings between the two reviewers.

1.6.4 Results

1.6.4.1 Summary of included studies

The initial search yielded 5,599 abstracts (Figure 3). A proportion of articles (n = 197) were removed due to duplication, and 5,402 abstracts were screened. The majority of abstracts (n = 5,356) were excluded upon review as they did not meet the inclusion criteria. Forty-seven full-text articles were retrieved and read; however, a further twenty-seven were excluded from this review for the following reasons: not reporting FPPs by parental weight status (n = 10), no demographic data on the number/percentage of parents per BMI category (n = 11), the article presented the results of an intervention (n = 4), the sample included parents with healthy weight only (n = 1), and measured perception of hunger (n = 1). One additional study was identified from a systematic review article (McPhie et al., 2014) that was not identified in the search. Twenty studies were included in this review (Baughcum et al., 2001, Berge et al., 2015a, Cebeci & Guven, 2015, Corsini et al., 2010, Costa et al., 2011, Francis et al., 2001, Francis & Birch, 2005b, Haycraft et al., 2017, Jingxiong et al., 2009, Kröller & Warschburger, 2008, Lewis & Worobey, 2011, Lipowska et al., 2018, Lumeng & Burke, 2006, Powers et al., 2006, Raaijmakers et al., 2014, Roberts et al., 2018, Russell et al., 2018, Wardle et al., 2002a, Wendt et al., 2015, Williams et al., 2017).
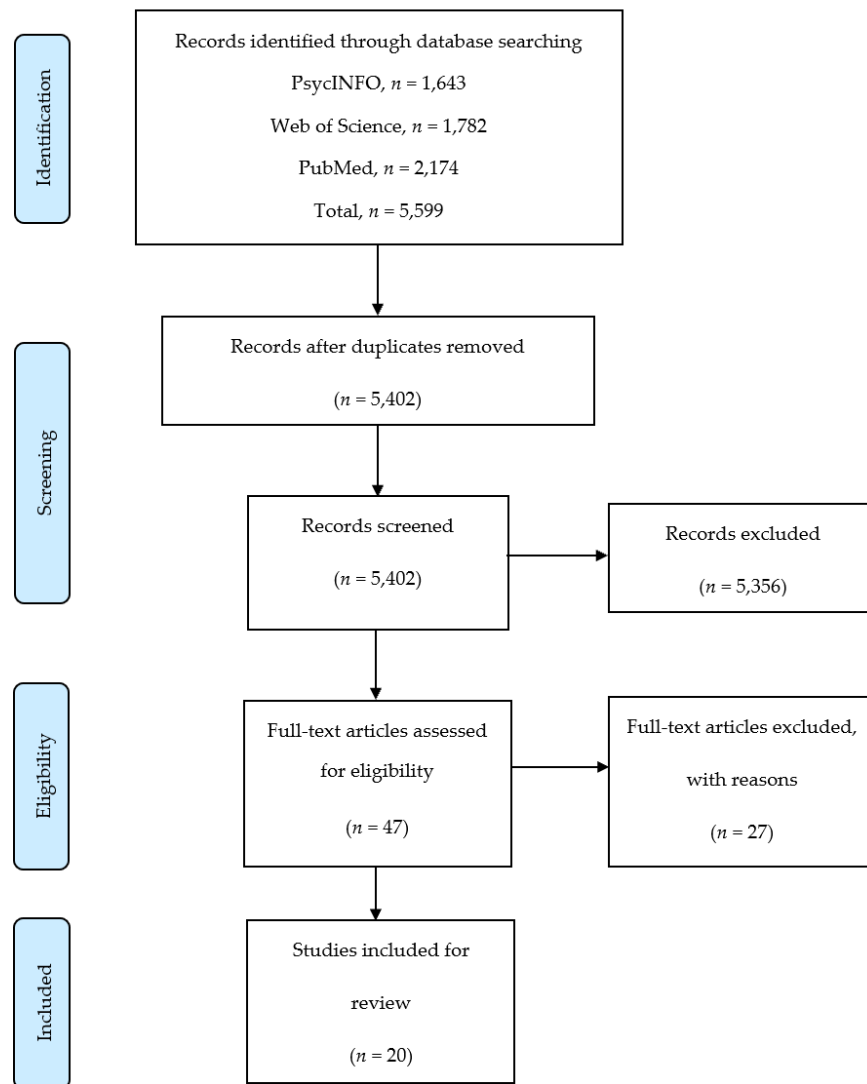
Figure 3: Prisma flowchart.

Apart from one study, nineteen of the twenty included studies used widely accepted BMI cut-offs for overweight and obesity (BMI $\geq$ 25). Lipowska et al. (2018) used body-fat status measured by a body composition analyser and grouped parents into either overfat, healthy or under-fat categories according to societal norms proposed by Gallagher et al. (2000). The oldest studies included in the review were published in 2001 (Baughcum et al., 2001, Francis et al., 2001). The most recent studies were published in 2018 (Lipowska et al., 2018, Powers et al., 2006) (Table 2).

Of the twenty relevant studies, sixteen were cross-sectional (Baughcum et al., 2001, Berge et al., 2015a, Cebeci & Guven, 2015, Corsini et al., 2010, Costa

et al., 2011, Francis et al., 2001, Haycraft et al., 2017, Jingxiong et al., 2009, Kröller & Warschburger, 2008, Lipowska et al., 2018, Powers et al., 2006, Raaijmakers et al., 2014, Roberts et al., 2018, Russell et al., 2018, Wardle et al., 2002a, Williams et al., 2017), three were observational (Lewis & Worobey, 2011, Lumeng & Burke, 2006, Wendt et al., 2015), and one longitudinal (Francis & Birch, 2005b) in design.

Research was conducted in the USA (n = 9), the UK (n = 2), Germany (n = 2), Turkey (n = 1), Australia (n = 1), Australia and New Zealand (n = 1), Brazil (n = 1), The Netherlands (n = 1), Poland (n = 1), and China (n = 1). Mothers comprised the participants in most studies (n = 13) (Table 2).

All twenty studies used non-clinical samples. The sample sizes varied; the largest sample was over 3,000 parents (Berge et al., 2015a) the smallest sample size was twenty mothers (Lewis & Worobey, 2011) (Table 2). FPPs were measured using questionnaires (n = 17), observations (n = 2), and a conjunction of both (n = 1).

The questionnaires used in studies varied; however, the Child Feeding Questionnaire (CFQ) and CFQ subscales appeared to be used most frequently (Berge et al., 2015a, Cebeci & Guven, 2015, Corsini et al., 2010, Costa et al., 2011, Francis et al., 2001, Francis & Birch, 2005b, Kröller & Warschburger, 2008, Lewis & Worobey, 2011, Powers et al., 2006). Other measures used to collect FPP data included the Pre-Schooler Feeding Questionnaire (PFQ) (Baughcum et al., 2001), the Chatoor Feeding Scale (CFS) (Wendt et al., 2015), the Parental Feeding Style Questionnaire (PFSQ) (Wardle et al., 2001, Powers et al., 2006), the Toddler Snack Food Feeding Questionnaire (TSFFQ) (Corsini et al., 2010), the Comprehensive Feeding Practices Questionnaire (CFPQ) (Haycraft et al., 2017, Roberts et al., 2018, Russell et al., 2018), the Caregiver's Feeding Styles Questionnaire (CFSQ) (Kröller & Warschburger, 2008), the Feeding Strategies Questionnaire (FSQ) (Roberts et al., 2018), the Parenting Strategies for Eating and Activity Scale (PSEAS) (Williams et al., 2017), and the Meals in our Household (MioH) (Roberts et al., 2018) measure.

1.6.4.2 Study quality

Using the National Institute for Health and Care Excellence (NICE) rating system, four studies were rated as poor (-), fourteen were rated reasonable in quality (+), and two studies were rated good (++). The majority of research examined was rated as reasonable in quality (n = 14;Table *1*). This means that the criteria for internal and external validity were partially met to a standard whereby any criteria that were not fulfilled would be unlikely to change the study conclusions (NICE, 2012). Four studies were rated as poor in quality (Corsini et al., 2010, Costa et al., 2011, Lewis & Worobey, 2011, Lumeng & Burke, 2006). This meant that the design of the study contained sources of bias, such as little consideration for confounding variables, a small sample size, and little or unclear information about the study sample.

Table 1: Quality rating by study

Study	Quality Rating
Baughcum et al, 2001	+
Berge et al, 2015	++
Cebeci & Guven, 2015	+
Corsini et al, 2010	-
Costa et al, 2011	-
Francis et al, 2001	+
Francis & Birch, 2005	+
Haycraft, Karasouli & Meyer, 2017	+
Jingxiong et al, 2008	+
Kröller & Warschburger, 2008	+
Lewis & Worobey, 2011	-
Lipowska et al, 2018	+
Lumeng & Burke, 2006	-
Powers et al, 2006	+
Raaijmakers et al, 2014	+
Roberts, Goodman & Musher-Eizenmann, 2018	++
Russell et al, 2018	+
Wardle et al, 2002	+
Wendt et al, 2015	+
Williams et al, 2017	+

1.6.4.3 Coercive control

The term "coercive control" is a distinct type of parental control reflecting attempts to dominate, pressure, or impose parental will on the child (Grolnick & Pomerantz, 2009). Coercive FPPs are described as parent-centred strategies, aiming to meet parental goals and desires (Vaughn et al., 2016). Such coercive control FPPs identified by the review are the following:

1.6.4.3.1 Parental control

The measures that assessed parental control over their child's eating and feeding interactions were heterogeneous. Wardle et al. (2002a) found that mothers with overweight/obesity reported significantly less PFSQ control over their child's food intake compared to mothers with healthy weight. Similarly, Haycraft et al. (2017) identified that mothers with overweight/obesity report assigning their child control around eating significantly more frequently than mothers with healthy weight, as assessed by the CFPQ. In another study, fathers with an overfat body composition reported controlling eating interactions significantly less than fathers with healthy fat body composition (Lipowska et al., 2018). In one laboratory-based observational study, fathers with overweight demonstrated significantly more struggle for control (efforts by parent or child to control feeding) than fathers with healthy weight and obesity (Wendt et al., 2015). The authors suggested that fathers with overweight attempt to try and control feeding due to concern about their child's weight; however, this finding was not observed among the mothers in the sample.

In contrast, two studies reported no significant differences between parents with healthy weight, overweight and obesity and PFSQ control (Powers et al., 2006) and PSEAS control (Williams et al., 2017).

1.6.4.3.2 Use of food to control negative emotions

The use of food to control negative emotions (Vaughn et al., 2016) is a behaviour used by parents in response to their child's emotional state (Musher-Eizenman & Holub, 2007, Snoek et al., 2007) and is shown to influence emotional eating in adulthood (Goldstein et al., 2017, Steinsbekk et al., 2018).

Just one study identified that mothers with overweight/obesity use food to soothe their child significantly less than mothers with healthy weight (Jingxiong et al., 2009).

Five studies reported no significant difference between parents with healthy weight, overweight and obesity and the use of food to control negative

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emotions (Baughcum et al., 2001, Haycraft et al., 2017, Lipowska et al., 2018, Raaijmakers et al., 2014, Wardle et al., 2002a). In addition, one particular study, Raaijmakers et al. (2014) reported no significant difference between the use of food to control negative emotions and maternal healthy weight, overweight, and obesity. However, this assessment was dichotomous, and consequently, the frequency using this FPP is unknown (Raaijmakers et al., 2014).

1.6.4.3.3 Food-based threats and bribes

Food-based threats and bribes are used by parents with their child in exchange for a favourable outcome (e.g., good behaviour from the child (Rodgers et al., 2013)). Despite the varied measurement of this FPP, just one study reported that the odds of mothers with obesity using CFPQ food as a reward were higher than those mothers with healthy weight (Russell et al., 2018).

In contrast, five studies reported no difference in the use of food-based threats and bribes among parents with healthy weight and overweight obesity. For example, Wardle et al. (2002a) reported no significant differences between parents with healthy weight, overweight, and obesity and PFSQ instrumental feeding. Haycraft et al. (2017) also reported no significant differences among a large sample of mothers with healthy weight, overweight/obesity, and use of CFPQ food as a reward. Similarly, there was no significant difference in the use of PFSQ food as a reward among parents with healthy and overfat body compositions (Lipowska et al., 2018). Two further studies also concluded that maternal weight had no significant effect on the use of food-based threats and bribes (Kröller & Warschburger, 2008, Raaijmakers et al., 2014).

1.6.4.3.4 Discipline

One study examined the use of discipline among parents with their children via the PSEAS, that asks parents whether they discipline their child for unhealthy eating (Williams et al., 2017). There was no significant difference between parents with healthy weight, overweight and obese and the use of discipline for eating unhealthy foods (Williams et al., 2017).

1.6.4.3.5 Pressure to eat

Pressure to eat is a controlling, directive feeding practice that aims to increase a child's food intake (Gregory et al., 2010).

Across nine studies, there was no significant difference identified among parents with healthy weight, overweight/obesity on PFQ pushing the child to eat more (Baughcum et al., 2001), CFQ pressure to eat (Cebeci & Guven, 2015, Costa et al., 2011, Francis et al., 2001, Kröller & Warschburger, 2008, Lewis & Worobey, 2011, Powers et al., 2006), CFPQ pressure to eat (Haycraft et al., 2017), and laboratory observational prompting a child to eat (Lumeng & Burke, 2006).

One study, however, reported that parents with healthy weight, use significantly higher levels of CFQ pressure to eat when compared to parents with overweight/obesity, suggesting that parents with overweight/obesity use pressure to eat less (Berge et al., 2015a). Furthermore, Russell et al. (2018) reported that the odds of mothers with obesity applying CFPQ pressure to eat were lower than mothers with healthy weight. Francis et al. (2001) reported that pressure to eat by mothers with overweight/obesity was significantly predicted by daughters' adiposity and mothers' concern for daughters' weight. Pressure to eat by mothers with healthy weight, on the other hand, was significantly predicted by mothers' perception of daughters as underweight (Francis et al., 2001).

1.6.4.3.6 Restriction

Restriction involves controlling a child's intake of unhealthy foods (Gregory et al., 2010). For example, parents might control a child's intake with the intention to limit unhealthy foods or decrease or maintain a child's weight (Musher-Eizenman & Holub, 2007).

Two studies reported a significant difference in CFQ restriction between mothers, caregivers and parents with healthy weight and overweight/obesity (Berge et al., 2015a, Costa et al., 2011). For example, in one study that included a large sample of parents (n = 3,252), parents with overweight/obesity reported significantly more food restriction when

compared to parents with healthy weight (Berge et al., 2015a). Similarly, in another study, parents with overweight/obesity reported significantly higher use of restriction compared to parents with healthy weight (Costa et al., 2011).

Five studies reported no significant difference in CFQ restriction (Cebeci & Guven, 2015, Francis et al., 2001, Francis & Birch, 2005b, Lewis & Worobey, 2011, Powers et al., 2006) among mothers with healthy weight, overweight, and obesity. There was no significant difference between mothers with healthy weight and overweight/obesity on CFPQ subscales restriction for health and restriction for weight (Haycraft et al., 2017). In another study, the odds of mothers with obesity using CFPQ restriction for health were lower compared to mothers of healthy weight (Russell et al., 2018). However, Roberts and Colleagues (2018) combined multiple subscales from the CFPQ, FSQ, and the MioH measure. They analysed the three overarching food parenting constructs outlined by Vaughn et al. (2016): coercive control, structure, and autonomy, which reported no significant difference between parents with healthy weight, overweight and obesity, and use of coercive FPPs. Although Francis et al. (2001) reported no significant difference in levels of restriction used by mothers with healthy weight and overweight/obesity, it was identified that the use of restriction by mothers with overweight/obesity was significantly predicted by maternal concern for their daughters' weight regardless of their daughters' actual weight status, maternal perception of daughters as overweight, and maternal investment in weight and eating issues. Additionally, Francis & Birch (2005b) extended these findings and identified that the use of restriction by mothers with overweight/obesity significantly predicts eating in the absence of hunger in daughters.

1.6.4.4 Structure

1.6.4.4.1 Meal and snack routines

Meal and snack routines are created by parents and include the "location, timing, presence of family members, atmosphere or mood, and presence or absence of distractions during meals and snacks" (Vaughn et al., 2013).

In one study, data was collected via interview to collect FPP information (Jingxiong et al., 2009). This study reported that mothers with overweight/obesity controlled feeding using a regular schedule significantly more compared to mothers with healthy weight (Jingxiong et al., 2009).

Regarding mealtime structure, the evidence remains inconclusive as this was explored in only one identified study (Baughcum et al., 2001). Specifically, Baughcum et al. (2001) included a domain in the PFQ that assessed structure during feeding interactions. This domain asks whether the child watched television during meals, whether the child had a set mealtime and snack routine and whether the mother sat down with the child during mealtimes. A significantly lower degree of structure during mealtimes was reported by mothers with obesity compared to mothers without obesity (Baughcum et al., 2001).

Only one study examined mealtime atmosphere, which reported no significant difference in dyadic reciprocity (affective engagement and quality of relatedness between mother and child), dyadic conflict (conflicts between mother and child overeating), talk and distraction during feeding (mother or child attempts to engage or control each other by talking or distracting), and maternal non-contingency (parental inability to interpret and respond to child cues) among parents with healthy weight, overweight and obesity (Wendt et al., 2015).

1.6.4.4.2 Monitoring

Parental monitoring involves the degree to which the parent keeps track of a child's food consumption (Birch et al., 2001). The small amount of evidence identified appears to suggest no difference between parents with healthy weight, overweight and obesity and monitoring.

In one study using the PSEAS, it was found that parents with overweight/obesity monitor their child's diet significantly less than parents with underweight/healthy weight (Williams et al., 2017).

Four studies reported no significant difference in CFQ monitoring and CFPQ monitoring (Cebeci & Guven, 2015, Costa et al., 2011, Haycraft et al., 2017, Kröller & Warschburger, 2008) and parents with healthy weight, overweight, and obesity. Costa et al. (2011) suggest that rather than parental weight, parental concern about their child's weight, i.e., where the child is at risk of developing overweight or is already overweight, is related to the use of parental monitoring of their child's eating which questions the direction of this relationship.

1.6.4.4.3 Food accessibility

Food accessibility involves how easy or difficult it is for a child to access food independently or with assistance (Vaughn et al., 2016). Access to foods was assessed using the TFSSQ in one study (Corsini et al., 2010). Compared to mothers with healthy weight and overweight, mothers with obesity report allowing access to sweets and snack foods significantly more (Corsini et al., 2010). In this study, mothers were asked to recall their previous and current FPPs. The recollection of FPPs may have, however, been influenced by mothers' current FPPs or weight status, and therefore, this significant finding should be interpreted with caution.

1.6.4.4.4 Food availability

Food availability reflects the ways in which parents shape a child's food environment by making certain foods present (Vaughn et al., 2016). Just one study assessed food availability via CFPQ food environment. Haycraft et al. (2017) reported that compared to mothers with healthy weight, mothers with overweight/obesity reported making a significantly less healthy home food environment.

1.6.4.4.5 Rules and limits

Parents may set rules and limits to clarify what, how much, when and where their child/ren should eat (Vaughn et al., 2016). In the reviewed studies, rules around snack foods were assessed in two studies via the TFSSQ (Corsini et al., 2010) and PSEAS (Williams et al., 2017). There was no significant difference reported between mothers with and without obesity regarding their

implemented rules around snack foods (TFSSQ) (Corsini et al., 2010). Also measured in this study was mothers' flexibility around snack foods (TFSSQ), where there was also no significant difference between maternal BMI status and this FPP (Corsini et al., 2010). In another study, limit setting was assessed using the PSEAS, which asks parents about their use of boundaries around the consumption of unhealthy foods, where no significant difference among parents with healthy weight and overweight/obesity and limit setting was identified (Williams et al., 2017).

1.6.4.4.6 Modelling

One study with a large sample (n = 437) explored maternal BMI status and food modelling using the CFPQ (Haycraft et al., 2017). Mothers with overweight/obesity reported significantly less modelling of healthy eating in comparison to mothers with healthy weight (Haycraft et al., 2017).

1.6.4.4.7 Unstructured practices

FPPs that are "unstructured" involve the absence of parental control or structure around child eating, and examples include meeting the child's demands, allowing the child to make inappropriate food-related decisions, and providing little guidance or direction (Vaughn et al., 2016).

Child control of feeding interactions is a domain in the PFQ and the CFPQ and asks parents/caregivers whether they let their child choose their food from what is being served, whether parents/caregivers make something different if their child did not like what was being served, and whether parents/caregivers allow their child to eat snacks when their child wanted (Baughcum et al., 2001, Musher-Eizenman & Holub, 2007).

Russell and Colleagues (2018) further reported that the odds of mothers with obesity allowing child control (CFPQ child control) is higher when compared to mothers with healthy weight. One study combined multiple subscales from the CFPQ, FSQ, and the MioH (Roberts et al., 2018) and analysed the three overarching food parenting constructs outlined by Vaughn and Colleagues (2016): coercive control, structure and autonomy. The authors reported that in comparison to parents with healthy weight, parents with obesity use

significantly fewer structure-based FPPs (there was no significant difference between parents with healthy weight and overweight) (Roberts et al., 2018). However, Baughcum and Colleagues (2001) reported no significant difference in PFQ child control around eating between mothers with obesity and mothers without obesity.

Age inappropriate feeding is a domain assessed by the PFQ and asks parents/caregivers to report, for example, if they gave the child a bottle during the day and whether they fed the child themselves if they did not eat enough (Baughcum et al., 2001). Only one study found that mothers with obesity used significantly more age-inappropriate feeding in comparison to mothers without obesity (Baughcum et al., 2001).

1.6.4.5 *Autonomy support/promotion*
1.6.4.5.1 Child involvement

Child involvement is defined as the extent to which a child is included in the planning (including food shopping) and preparation of foods and/or meals (Vaughn et al., 2016). One study examined this construct via CFPQ involvement where there was no significant difference between mothers with healthy weight, overweight/obesity (Haycraft et al., 2017).

1.6.4.5.2 Encouragement

In contrast to pressure to eat, whereby parents demand that their child eats more, encouragement involves parental use of positive, gentle, and supportive behaviours that are non-coercive (Vaughn et al., 2016). Parental encouragement aims for children to build habits around healthy eating (Vaughn et al., 2016).

Two studies assessed parental encouragement using the PSFQ (Lipowska et al., 2018, Wardle et al., 2002a) that presented contradictory results. Lipowska and Colleagues (2018) reported that among a Polish sample of parents, mothers with overfat body compositions report significantly more PSFQ encouragement than mothers with healthy body fat compositions. Wardle and Colleagues (2002a) on the other hand, reported no significant differences in

PSFQ encouragement among mothers with healthy weight, and overweight/obesity.

Parental encouragement of balance and variety around food and the home food environment was assessed in another study (Haycraft et al., 2017) using the CFPQ. It was found that mothers with overweight/obesity reported significantly lower encouragement of balance and variety in comparison to mothers with healthy weight.

1.6.4.5.3 Praise

Vaughn and Colleagues (2016) define praise as a form of positive reinforcement where parents provide verbal feedback to the child. One study assessed praise in the PSEAS that asks parents whether they use praise when their child eats healthy snacks (Williams et al., 2017). No significant differences between parental BMI status and use of praise were reported in this study (Williams et al., 2017).

One study combined multiple subscales from the CFPQ, FSQ, and the MioH (Roberts et al., 2018), and analysed the three overarching food parenting constructs outlined by Vaughn and Colleagues (Vaughn et al., 2016): coercive control, structure, and autonomy. Roberts and Colleagues (2018) reported no significant differences between parents with healthy weight, overweight and obesity, and use of autonomy support FPPs.

Table 2: Data extraction table presenting results by study.

Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
Baughcum et al. (2001), USA	Cross-sectional	To develop the Pre-schooler Feeding Questionnaire (PFQ).	634 mothers	18.5 - 29.9	488	23 months to 5-year-olds	PFQ	Compared to mothers with healthy weight and overweight, mothers with obesity reported significantly more use of age-inappropriate feeding ($p = 0.004$), less structure during feeding interactions (including television watching, mother-child interactions, and set mealtime routine) ($p = 0.001$), and higher concern about the child overeating/being overweight ($p = 0.001$). There was no significant difference between mothers with healthy weight and overweight, and obesity with regards to difficulty in child feeding, pushing the child to eat more, using food to calm the child, concern about the child being underweight, and giving their child more control of feeding interactions ($p = 0.07$). In regression analyses, maternal obesity was a significant predictor of concern of about the child eating/being overweight when child weight status and family income are controlled for. (p values only reported if $p < 0.10$)	Irrespective of child weight status and family income, mothers with obesity report more concern about their child overeating/being overweight. Mothers with obesity give their child control less control during feeding interactions (e.g., not letting their child choose food from what is served) irrespective of family income and child overweight.
				≥30	146				
Berge et al. (2015a), USA	Cross-sectional	To explore food restriction and pressure to eat by	3252 parents	≤25	1444	Adolescents (mean age	CFQ subscales: pressure to	Parents with healthy weight reported significantly higher levels of pressure to eat, compared to parents with overweight and	Use of FPPs are as a result of parental weight status

Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
		parent and adolescent weight concordance and discordance.		≥25	2108	14.4 years old)	eat and restriction	obesity ($p < 0.05$). Parents with overweight/obesity reported significantly more food restriction compared to parent with healthy weight ($p < 0.05$).	and their adolescent's weight status.
Cebeci & Guven (2015), Turkey	Cross-sectional	To examine the influence of maternal obesity on FPPs with their children with obesity.	491 mothers	18–24.9	41	6- to 18.5-year-olds	Turkish CFQ	Other than perceived parent weight ($p < 0.001$), there were no significant differences on remaining CFQ subscales: perceived responsibility ($p = 0.494$), perceived child weight ($p = 0.093$), concern over child's weight ($p = 0.152$), restriction ($p = 0.234$), pressure to eat ($p = 0.072$), and monitoring ($p = 0.782$) among mothers with and without obesity.	Maternal BMI does not appear to have a significant influence on FPPs.
				25–29.9	134				
				≥30	316				
Corsini et al. (2010), Australia	Cross-sectional	To develop and validate the Toddler Snack Food Feeding Questionnaire (TSFFQ).	Sample 2: 216 mothers	≤18.5	2	4- to 5-year-olds	TFSSQ and CFQ subscales: restriction, pressure to eat and monitoring	*Sample 2 (pre-schoolers, past practices)* Compared to mothers with healthy weight and overweight, mothers with obesity allowed access to snack foods significantly more ($p = 0.001$, eta squared = 0.07)). There was no difference between maternal BMI status and implemented rules around snacking ($p = 0.022$, eta squared = 0.04)), and flexibility around snacking ($p = 0.012$, eta squared = 0.04).	There is evidence to suggest that mothers with obesity allow access to snack foods more when compared to mothers without obesity.
				18.5–24.9	120				
				25–29.9	45				
				≥30	37				
				NR	12				
Costa et al. (2011), Brazil	Cross-sectional	To examine parents feeding attitudes, parent BMI, and children's weight status.	105 Parents/ Caregivers	<25	68	6- to 10-year-olds	Portuguese CFQ	Compared to parents with healthy weight, parents with overweight/obesity reported significantly higher use of restriction ($p = 0.023$). There was no difference in use of pressure to eat ($p = 0.233$), and monitoring ($p = 0.21$), and parent BMI status.	There is evidence to suggest that parents with overweight/obesity engage in restriction more than parents with healthy weight.
				>25	37				

Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
Francis et al. (2001), USA	Cross-sectional	To explore the predictors of the use of maternal restriction and pressure FPPs.	196 mothers	<25	92	5-year-olds	CFQ subscales: perceived child overweight, child overweight, restriction, and pressure to eat	There were no significant differences in levels of CFQ restriction and CFQ pressure to eat used between mothers with healthy weight and mothers with overweight/obesity. Among mothers with overweight/obesity, the use of restriction was significantly predicted by concern for daughters' weight ($p \leq 0.05$); pressure to eat was significantly predicted by daughters' adiposity ($p \leq 0.05$) and mothers' concern for daughters' weight ($p \leq 0.05$).	Maternal weight status does not influence FPPs.
				$\geq$25	104				
Francis & Birch (2005b), USA	Longitudinal	To explore restriction on food intake, the influence of eating in the absence of hunger on BMI, and maternal weight status as a mediator on these relationships.	171 mothers	$\leq$24.9	80	5- to 9-year-olds	CFQ subscale: Restriction	There is no significant difference in the use of restriction used by mothers with overweight/obesity when compared to mothers with healthy weight. Among mothers with overweight/obesity, use of restrictive FPPs significantly predicted daughters' eating in the absence of hunger ($p < 0.05$).	There is no specific feeding style associated with mothers with overweight and obesity.
				$\geq$25	91				
Haycraft et al. (2017), UK	Cross-sectional	To compare maternal FPPs by maternal weight status.	437 mothers	19–24.9	249	2- to 6-year-olds	CFPQ	Significantly higher reports of child control ($p < 0.001$) and lower reports of encouraging balance and variety ($p = 0.029$), healthy food environment ($p = 0.021$) and modelling ($p < 0.001$) among mothers with overweight/obesity compared to mothers with healthy weight. There were no significant differences between mothers with healthy weight/overweight and obesity on any other CFPQ subscales (involvement, monitoring, pressure to eat, restriction for health, restrictions for weight control, food as a reward, emotion regulation).	Mothers with overweight and obesity engage in fewer healthy FPPs when compared to a healthy weight sample of mothers.
				$\geq$25	188				

Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
Jingxiong et al. (2009), China	Cross-sectional	To examine the relationship between FPPs and parental characteristics.	430 mothers	≤24 ≥24	323 107	1- to 3-year-olds	An interview to obtain information on parent education level, family income, and FPPs (including a 24-h dietary recall)	In comparison to mothers with healthy weight, mothers with overweight/obesity worry significantly more about their child overeating ($p = 0.004$) and that their child would develop obesity ($p = 0.003$). Mothers with overweight/obesity controlled feeding with a regular schedule ($p = 0.017$) and used food to soothe the child significantly less than mothers with healthy weight ($p = 0.008$).	Mothers with overweight report controlling child feeding with a regular feeding schedule and soothed children using food less often than mothers with healthy weight.
Kröller & Warschburger (2008), Germany	Cross-sectional	To explore the impact of various FPPs on child's food intake and the influence of socioeconomic status and weight on the use of different types of FPPs.	219 mothers	≤24.9 ≥25	104 111	3- to 6-year-olds	Items from the CFQ, CFSQ and newly developed questions from interviews with mothers and experts	No significant differences in FPPs between mothers with healthy weight and overweight/obesity. Maternal weight (underweight/healthy weight/overweight/obesity) had no significant effect on the use of FPPs ($p = 0.60$).	Maternal weight does not influence the use of FPPs.
Lewis & Worobey (2011), USA	Laboratory observation	To explore maternal control and whether feeding style is different between healthy and overweight mothers.	20 mothers	<25 ≥25	10 10	2-year-olds	CFQ, food record, observed behaviours and video recordings.	No significant differences in pressure ($p = 0.56$) and restriction ($p = 0.28$), observed feeding style pressure ($p = 0.49$), and observed feeding style restriction ($p = 0.28$) between mothers with healthy weight and mothers with overweight/obesity. Mothers with overweight/obesity demonstrated significantly more concern about their own weight ($p = 0.05$) than mothers with healthy weight. Maternal BMI was not correlated with reported or observed feeding styles.	Lack of association between reported and observed feeding styles.

Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
Lipowska et al. (2018), Poland	Cross-sectional	To explore nutritional knowledge, eating habits, and appetite traits among children with and without excess body fat in the context of FPPs and body-fat status.	315 mothers; 276 fathers	Healthy * Mothers Fathers Overfat * Mothers Fathers	190 109 125 167	5-year-olds	PFSQ	Mothers with an overfat body composition use encouragement to eat significantly more than mothers with healthy body fat composition ($p < 0.05$). Fathers with an overfat body composition control eating interactions significantly less than fathers with a healthy body fat status ($p < 0.05$). There were no significant findings on food as a reward and emotional feeding and parental body fat composition status (p values not reported).	Mothers with an overfat body composition do not necessarily transmit unhealthy eating behaviours to their children.
Lumeng & Burke (2006), USA	Laboratory observation	To explore if there is an association between maternal prompting to eat, child compliance and mother and child weight status.	71 mothers	<30 ≥30	45 26	3- to 6-year-olds	Parental prompting and child compliance	There was no significant difference found in prompting child to eat ($p = 0.55$) between mothers with and without obesity.	Greater maternal prompting was predicted by a younger child age, a novel food, more bites of food taken by the mother and low maternal education.
Powers et al. (2006), USA	Cross-sectional	To explore the association of maternal feeding practices with maternal BMI and child eating behaviours.	290 mothers	<24.9 25–29.9 30–39.9 ≥40.0	77 86 97 30	2- to 5-year-olds	CFQ subscales: restriction and pressure to eat; PFSQ subscale: control	There were no significant differences found with between maternal BMI and maternal FPPs restriction ($p = 0.63$), pressure to eat ($p = 0.33$), and control ($p = 0.62$).	There is no feeding style shared among mothers with overweight or obesity.

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Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
Raaijmakers et al. (2014), The Netherlands	Cross-sectional	To explore the use of instrumental and emotional feeding practices between main meals.	359 mothers	≤18.49	11	4- to 12-year-olds	Self-constructed instrument developed from interviews with mothers and health promotion experts	Using food as a reward (26.8% of mothers with obesity) was reported more than use of food as a punishment (18.3% of mothers with obesity) and as a comfort (16.9% of mothers with obesity) with their child. No significant association between emotional and instrumental FPPs and maternal BMI.	There is no association between maternal BMI status and use of emotional and instrumental FPPs.
				18.5–24.9	175				
				25–29.9	101				
				≥30	71				
				Over-weight (≥25)	5				
				Obese	10				
Roberts et al. (2018), USA	Cross-sectional	To investigate socioeconomic status, parental BMI, and dieting status on the use of FPPs.	376 mothers; 118 fathers	18.5–24.9	223	2.5- to 7.5-year-olds	CFPQ, FSQ, MioH, and newly developed questions	In comparison to parents with healthy weight and overweight, parents with obesity (who are not dieting) significantly engage in the least use of structured ($p < 0.001$) and child autonomy FPPs ($p = 0.03$). There were no significant differences between parents with healthy weight, overweight, and obesity and use of coercive control FPPs ($p = 0.700$).	When compared to other parental characteristics such as socioeconomic status, parent BMI is influential on the use of FPPs that aim implement structure and promote child autonomy.
				25–29.9	149				
				≥ 30	120				
Russell et al. (2018), Australia and New Zealand	Cross-sectional (secondary data analysis)	To explore FPPs among parents of toddlers and pre-schoolers and to examine the how FPPs differ by parent and child demographic data.	751 mothers	≤25	383	4- to 6-year-olds	CFPQ	Among pre-schoolers (and adjusted for receiving a nutrition intervention before the measurement of FPPs), the odds of mothers with obesity using CFPQ food as a reward and CFPQ child control were higher compared to mothers with healthy weight (OR = 1.13, 95% CI 0.94, 1.36; OR = 1.22, 95% CI 0.71, 2.09). The odds of mothers with obesity using CFPQ restriction for health and pressure to eat were lower compared to mothers with healthy	Mothers' use of FPPs are related to their BMI status which has implications for interventions targeting a change in FPP use.
				25 ≤ 30	186				
				≥30	152				
				NR	30				

Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
								weight (OR = 0.86, 95% CI 0.72, 1.02: OR = 0.82, 95% CI 0.73, 0.91).	
Wardle et al. (2002a), UK	Cross-sectional	To identify any differences in feeding styles among mothers with obesity and normal weight.	Families with healthy weight, over-weight, and obesity	≤25	114	4- to 5-year-olds	PFSQ	Mothers with obesity reported significantly less control over their children's eating ($p = 0.01$) than mothers with healthy weight. There were no significant differences in reports of emotional feeding, instrumental feeding, and prompting/encouragement to eat.	No difference in use of emotional, instrumental, and prompting/encouragement to eat parental feeding styles among mothers with healthy weight, and obesity.
				Mothers ≥28.5 Fathers ≥25	100				
Wendt et al. (2015), Germany	Laboratory observation	To explore parent-child interactions during feeding or joint eating and investigate the differences between mothers and fathers and parental weight.	148 mothers; 148 fathers	≤18.5 Mothers Fathers	4 2	7 months to 3.9-year-olds	Observation rated using the CFS	No significant differences found in CFS subscales: dyadic reciprocity, dyadic conflict, talk/distraction, struggle for control, and non-contingency among mothers with healthy weight, overweight, and obesity. There were also no significant differences found among fathers with healthy weight, overweight, and obesity apart from struggle for control. Fathers with overweight demonstrated a significantly higher amount of struggle for control than fathers with healthy weight and obesity ($p = 0.003$).	Parents with healthy weight, overweight, and obesity parents show the same ability to show relatedness, interpret child cues, and affective engagement during feeding and joint eating.
				18.5–24.9 Mothers Fathers	83 77				
				25–29.9 Mothers Fathers	17 32				
				≥30 Mothers Fathers	44 37				

Author(s), Study Country	Design	Aim(s)	Sample	BMI	n	Age of Children	FPP Measures	Relevant FPP Findings	Relevant Conclusions
Williams et al. (2017), USA	Cross-sectional	To explore parental BMI and family behaviours associated with childhood obesity in a community sample.	143 parents	≤25	70	9- to 10-year-olds	PSEAS	Parents with overweight/obesity monitor their child's diet significantly less than parents with healthy weight ($p < 0.000$). There were no significant differences between parental BMI status and discipline (children are disciplined for unhealthy eating), control, limit setting (boundaries with unhealthy eating), and reinforcement (praise for eating healthy foods).	Increased parent BMI is associated with less monitoring of children's dietary intake.
				≥25	73				

* Determined using a segmental body composition monitor. Parental body fat percentage was calculated individually due to the differences in age. FPP: Food Parenting Practice, NR: Not Reported, BMI, Body Mass Index, PFQ: Pre-schooler Feeding Questionnaire, CFQ: Child Feeding Questionnaire, CFS: Chatoor Feeding Scale, PFSQ: Parental Feeding Style Questionnaire, TSFFQ: Toddler Snack Food Feeding Questionnaire, CFPQ: Comprehensive Feeding Practices Questionnaire, CFSQ: Caregiver's Feeding Styles Questionnaire, PSEAS: Parenting Strategies for Eating and Activity Scale, FSQ: Feeding Strategies Questionnaire, MioH: Meals in our Household, OR: Odds Ratio, CI: Confidence Interval.

1.6.5 Discussion

The aim of this review was to systematically identify the types of food-related parenting practices used by parents with overweight/obesity when compared to parents with healthy weight. This is important since extensive research indicates an increased presence of EDs among individuals who have parents with overweight and/or increased BMIs (Hudson et al., 2007, Palavras et al., 2011, Udo & Grilo, 2018, Villarejo et al., 2012).

With regards to coercive FPPs, there is a trend among studies (n = 4) suggesting that parents with overweight/obesity have less control during feeding interactions and over their child's food intake. With regards to the use of food to control negative emotions, food-based threats and bribes, pressure to eat, and restriction, the research evidence suggests there is no difference between parents with healthy weight and overweight/obesity (Baughcum et al., 2001, Cebeci & Guven, 2015, Costa et al., 2011, Francis et al., 2001, Francis & Birch, 2005b, Haycraft et al., 2017, Kröller & Warschburger, 2008, Lewis & Worobey, 2011, Lipowska et al., 2018, Lumeng & Burke, 2006, Powers et al., 2006, Raaijmakers et al., 2014, Wardle et al., 2002a). The evidence examining parental discipline was inconclusive as this was investigated in one study only (Williams et al., 2017). These results are of interest as previous research suggests that parental weight status is a predictor of the use of coercive FPPs (Birch & Davison, 2001). Parents who struggle with their own eating and weight are more likely to use coercive FPPs with their children (Francis et al., 2001, Tiggemann & Lowes, 2002) and adolescents (Berge et al., 2015a). However, the results of the evidence synthesis in the current review suggests otherwise. The use of such FPPs could rather be driven by other parental cognitions, such as concern about their child's weight rather than their own weight. This is evident in one of the identified studies that reported that the use of restriction and pressure to eat was significantly predicted by maternal concern for their daughters' weight (Francis et al., 2001), and is further supported by research reporting associations between parental concern about child weight and use of coercive FPPs (Haines et al., 2018, Swyden et al., 2017).

Regarding FPPs aiming to implement structure, the evidence on the use of monitoring indicates that there is no difference between parents with healthy weight, and overweight/obesity (n = 4 studies). The research evidence on parents' application of meal and snack routines, rules and limits and unstructured practices is inconclusive due to the assessment of multiple FPP constructs in single studies. The evidence around food accessibility, food availability, and modelling FPPs is also inconclusive due results being based on single studies. Although inconclusive, the existing evidence indicates that parents with overweight and obesity provide a less healthy home food environment and model healthy eating less than parents with healthy weight (Haycraft et al., 2017). Such findings shed light on the types of food environments children may be exposed to in families with overweight and obesity, which is one of the determinants of child weight (Rosenkranz & Dzewaltowski, 2008, Schrempft et al., 2016). Access and availability of healthy foods alongside parental modelling are all important FPPs in developing children's healthy eating behaviours. For example, parental modelling of fruit and vegetable intake has been found to be positively associated with children's fruit and vegetable intake (Pearson et al., 2009, Yee et al., 2017) and lower availability of high-fat foods and sweet snacks (Watts et al., 2018). Further, access and availability to healthy foods might reduce the need for parents to exert coercive FPPs such as restriction. It should, however, be highlighted that structure FPPs described above were all examined in single, unreplicated studies and so should be interpreted with caution.

Regarding unstructured FPPs, the evidence was inconclusive due to contradictory study results (Baughcum et al., 2001, Haycraft et al., 2017, Roberts et al., 2018, Russell et al., 2018). FPPs that are unstructured include the absence of parental control (Vaughn et al., 2016); while this is important for the development of child autonomy, having too much freedom with food choices and eating, in addition to a less healthy home food environment, could result in less healthier selections of foods. It is important that unstructured FPPs are further researched, particularly as eating behaviours in childhood

can be tracked into adulthood (Emmett et al., 2015), which emphasises the importance of the development of healthy eating behaviours in early life.

Finally, the results examining autonomy support FPPs, indicate that there are no significant differences between parents with healthy weight and overweight/obesity and child involvement, encouragement, and praise. These results are based on single, unreplicated studies (Haycraft et al., 2017, Williams et al., 2017). Encouragement was examined in three studies; however, due to contradictory results, the evidence is inconclusive (Lipowska et al., 2018, Wardle et al., 2002a). Although there was little evidence identified on autonomy support FPPs, they should be the focus of further research since they provide parents with the opportunity to convey information about healthy eating, subsequently allowing the child to internalise healthy norms and make informed decisions through the fostering of their autonomy (Di Pasquale & Rivolta, 2018).

The findings from this review should be interpreted with caution since some FPPs in relation to parental BMI were examined in single studies, mainly where the research involved structure and autonomy support FPPs. In addition, it is unknown whether the research indicating that there is no relationship between parental BMI and FPPs is due to a real effect, the absence of methodological rigour (only two studies received ++ in this review) or the use of inadequate/inconsistent measures to capture FPPs. There may be value in conducting a review of measures using the COSMIN (Consensus-based Standards for the selection of health Measurement Instruments) checklist to aid the selection of the most appropriate measure for the FPP research at hand (Prinsen et al., 2018).

The current review identified a number of available measures to assess FPPs. Although the CFQ was the most frequently used measure to capture self-reported FPPs, many more food-related practices have been identified (Vaughn et al., 2013, 2016). The CFQ does not capture the broader range of FPPs, such as parental modelling and teaching about nutrition (Musher-Eizenman & Holub, 2007), so it is possible that there are additional FPPs used

by parents that were not captured by studies using this measure. However, it is possible that the inconsistent results between parental BMI and FPPs may be due to other variables, for example, parents' own weight concerns, child age, and child weight (Roberts et al., 2018). On the other hand, it is also possible that some of the inconclusive findings described above between parental BMI and FPPs are due to a lack of well-defined concepts being measured, subsequently resulting in a number of FPP measures that include similar subscales but assess different behaviours (Vaughn et al., 2013). For example, the CFQ's restriction subscale covers items about regulating the child's intake, such as limiting the amount of sweets and high-fat foods consumed (Birch et al., 2001) and items such as, "I offer my child her favourite foods in exchange for good behaviour". However, this is an item that other measures (such as the CFPQ food as a reward subscale (Musher-Eizenman & Holub, 2007) and PSFQ instrumental feeding subscale (Wardle et al., 2002a) regard as food-based threats and bribes to behave.

Often only the minimal stages are used to design measures rather than what is required for rigorous measure development. For example, seventy-one FPP measures have been identified in another systematic review; however, just less than half of these involved clear identification and definition of concepts to be measured during the development stage (Vaughn et al., 2013). For the current review, this was problematic since there were limitations when comparing and evaluating the relationships between parental BMI and the use of FPPs among the studies included in the review. One of the strengths of the current review, however, is that the study findings were grouped and guided by Vaughn and Colleagues (2016) FPPs content map that will help researchers plan future studies.

Several limitations of the review have been identified. The samples in some of the studies may have introduced bias to the data identified in the review. For instance, Kröller and Warschburger (2008) recruited mothers from clinics where they were receiving psychoeducation about their weight. One of the study conclusions was that maternal weight does not appear influence use of FPPs (Kröller & Warschburger, 2008). However, it is possible that this

conclusion might have been due to the mothers' newly acquired knowledge about the potential relationship between the use of certain FPPs and child weight (Kröller & Warschburger, 2008). Two further studies also reported that there are no particular FPPs used among mothers with overweight/obesity (Baughcum et al., 2001, Powers et al., 2006). However, mothers may have been more attuned to their eating behaviours before participating in the study as they were recruited from the Special Supplemental Nutrition Programme for Women, Infants and Children.

Participants were predominantly white across the studies, so the generalisability of findings is restricted to other ethnicities. Two of the identified studies are applicable to white mothers and their daughters only (Francis et al., 2001, 2005b). Future research should seek to include more diverse ethnic samples, particularly as South Asian and Black Afro-Caribbean parents have reported using greater pressure to eat (Gu et al., 2017), higher levels of restrictive FPPs and lower levels of monitoring in comparison to White British and White German parents (Blissett & Bennett, 2013).

In addition to the inclusion of more varied family demographics, the current evidence base could also be strengthened by larger sample sizes in future studies. Although it is suggested that "power is not an issue" when there is a sample of 100 or more (Stevens, 1996), none of the included studies presented a power calculation. Therefore, the results of those studies that included less than 100 parents that reported there is little or no difference in the use of FPPs between parents with healthy weight, overweight and obesity may have been due to the studies being insufficiently powered (Francis & Birch, 2005b, Lewis & Worobey, 2011, Lumeng & Burke, 2006, Williams et al., 2017), resulting in different statistical outcomes.

With regards to study design, the current review identified only one longitudinal study (Francis & Birch, 2005b). The majority of studies were cross-sectional. A cross-sectional design is appropriate for capturing the prevalence of behaviours without the risk of losing participants to follow-up (e.g., in longitudinal studies) (Sedgwick, 2014). However, neither the

causality nor long-term impact of specific FPPs on child outcomes can be determined in cross-sectional studies. More longitudinal studies are required to further explore the relationship between parental BMI, FPPs, childhood weight and eating behaviours.

More research is also needed to help determine the inconclusive and limited findings. Future research aiming to develop or improve measures of FPPs should do so using the appropriate steps for questionnaire development. It is also important for research to acknowledge that other adult caregivers may be influential on a child's diet and eating behaviours.

1.6.6 Conclusion

In conclusion, the findings of the review showed that studies with an improved methodological quality is required. A better understanding is required on the potential influence parental BMI has on the use of FPPs which may contribute to the parent-child BMI and eating behaviour relationship. This could be achieved by replication and extension of existing research with repeated use of the same or improved measures to capture FPPs. Despite the mixed findings in the review, it is important that healthcare professionals working in weight management address disordered eating behaviours, and FPPs where applicable if successful weight loss is the desired outcome. Similarly, it is important that healthcare professionals working with patients with EDs address weight management. Although more research is required, there may also be value in incorporating education around creating healthier home food environments within family-based interventions delivering nutrition education.

In addition to the findings of the systematic literature review, several other factors from the wider research literature that affect FPPs were raised as important areas to examine. These are discussed in the following subsections.

1.7 Parental eating behaviours

Parental use of FPPs are also influenced by their own eating behaviours. Parents can also influence their children's eating behaviours via a modelling process. Children may not only model their parents' food consumption and

preferences of food (Birch & Fisher, 1998, Zarychta et al., 2019), but also their relationships and attitudes towards food (Brown & Ogden, 2004, Zarychta et al., 2019). This modelling process is observational learning that depends on parents to facilitate and encourage healthy eating behaviours in children. Parents may deliberately exhibit (or model) food intake and food-related behaviours in the presence of their children as a method to foster healthy eating behaviours.

There are three commonly assessed psychological constructs of eating behaviours: emotional eating, external eating, and restrained eating (van Strien et al., 1986). Emotional eating can be defined as eating in response to one's emotional state such as stress, sadness, or boredom. External eating refers to consuming food in response to cues in the environment such as the sight or smell of food. Restrained eating refers to one's attempts to limit food consumption irrespective of whether these attempts are successful or not.

The aforementioned eating behaviours are important to research as they are associated with a higher BMI (Braden et al., 2018, Koenders & van Strien, 2011, Ramírez-Contreras et al., 2021) and maladaptive eating behaviours such as binge eating (Braden et al., 2018, Černelič-Bizjak & Guiné, 2022, Nicholls et al., 2016, Ricca et al., 2009). These eating behaviours are implicated in the development of overweight and obesity and are referred to as 'obesogenic' behaviours (Marb et al., 2022, Miller et al., 2020).

Research shows that the attitudes and behaviours parents have towards their own eating are linked to their use of FPPs (e.g., Guivarch et al., 2022). For instance, parental uncontrolled and emotional eating has been linked to the use of coercive FPPs including emotion regulation, use of food as a reward, and child control (de Lauzon-Guillain et al., 2009). Multiple studies also provide evidence of a relationship between increased frequency of parental restrained eating and increased engagement in restriction FPPs with their children (Birch & Fisher, 2000, Francis et al., 2001, Gray et al., 2010, Johannsen et al., 2006, Tylka et al., 2013). Furthermore, experimental research shows that parents who report reward-based eating, select and

provide their children more ultra-processed foods (Dolwick & Persky, 2021). Such results demonstrate the general notion that how parents eat influences the behaviours used to provide food to their children.

Several factors are suggested to influence one's eating behaviours, examples include early life influences (Boswell et al., 2018b), genetics (Silventoinen & Konttinen, 2020), and the social context in which food consumption is taking place (Higgs & Thomas, 2016). With regards to early life influences, evidence shows a link between childhood experiences of FPPs and adult eating behaviours. For instance, parents that remember experiencing food-based threats or bribes to control their behaviour, report to engage in higher levels of binge-eating and dietary restraint as adults (Puhl & Schwartz, 2003). The experience of restriction, pressure to eat and being provided food for emotion regulation as a child have all been linked to later disordered eating behaviours, such as emotional eating and less intuitive eating (Ellis et al., 2016, Lev-Ari et al., 2021, Galloway et al., 2010, Tan et al., 2016b). However, research is yet to examine whether parents' experiences of FPPs as a child effect their use of FPPs with their own child.

Another well researched factor affecting eating behaviours is ability to self-regulate, where difficulties in food intake self-regulation (i.e., responding to internal cues of hunger and satiety) is related to development of overweight and obesity (Anderson et al., 2017, Anzman & Birch, 2009, Balani et al., 2019).

Bandura (1982) defines self-efficacy is defined as an individual's belief in their ability to accomplish a task or succeed in specific situations. Self-efficacy is one of the prerequisites of self-regulation (e.g., Anderson et al., 2007, Annesi & Gorjala, 2010). Self-efficacy has been examined across a range of parenting-related behaviours (e.g., Albanese et al., 2019, Ambrose et al., 2020, Brown et al., 2014, Weiss et al., 2016), including FPPs, obesity and weight loss interventions in several studies (e.g., Butryn et al., 2017, James et al., 2018, Kerrigan et al., 2018, Leung et al., 2018, Richman et al., 2001). However, in relation to the FPP research literature, very little is known

is about how food intake self-efficacy among parents is related to their use of FPPs. This is important given the familial transmission of eating behaviours and weight.

1.8 Parental mental health

Analysis from a large cohort of children (N = 547,747 children) show that one in four children aged 0 to 16 years of age are exposed to maternal mental illness, with anxiety and depression being most prevalent (Abel et al., 2019). Children exposed to parents with a mental health illness are at increased risk of developing a mental illness themselves (Lawrence et al., 2019, Siegenthaler et al., 2012) and developing a higher BMI (Benton et al., 2015).

Parents' mental health symptomatology has implications on food-related interactions with their children. One systematic review reports that mothers with anxiety are less likely to initiate breastfeeding, exclusively breastfeed, terminate breastfeeding earlier and encounter difficulties breastfeeding (Fallon et al., 2016). In context of feeding interactions later in a child's life, another systematic review on the maternal correlates of FPPs suggest that there is partial evidence for a relationship between maternal psychopathology (e.g., anxiety, depression, general psychopathology) and use of coercive FPPs including pressure to eat and restriction (McPhie et al., 2014). More recent evidence sought to add to these findings, and reported significant positive associations between maternal anxiety and depression, and use of coercive FPPs (pressure to eat, restriction for health, restriction for weight control, emotion regulation and food as a reward) (Haycraft, 2020). It has also been found that higher maternal anxiety is not only related to poorer maternal diet, but also a low quality diet in their children (Trude et al., 2020).

Research has also established that mental illness is amplified among individuals with overweight and obesity (Gariepy et al., 2010, Milaneschi et al., 2019, Zhao et al., 2009) and a bidirectional relationship appears to occur between obesity, and anxiety and depression (e.g., de Wit et al., 2010, Luppino et al., 2010, Rajan & Menon, 2017). Research also shows that higher levels of reported anxiety and depression are linked to obesogenic eating

behaviours (Emerson et al., 2017) contributing to the development of overweight an obesity. This is important as research links maternal obesity to poorer cognitive and mental health outcomes in children (Rivera et al., 2015, Tong & Kalish, 2021).

In summary, the research literature indicates that not only is anxiety and depression prevalent among parents, but also prevalent among individuals with overweight and obesity. However, research has yet to explore whether use of coercive FPPs are related to symptoms of anxiety and depression among parents with overweight and obesity.

1.9 News media and social media

On becoming a parent, the need for information is increased. Traditional sources of guidance and information come from family and friends. Parents are however frequently using the internet to obtain health-related information for their children (Kubb & Foran, 2020), with online news and social media being popular sources of information (Bryan et al., 2020).

The internet permits parents to seek and access information in relation to a concern they may have about their child conveniently and with immediacy (Walsh et al., 2015b). However this can be problematic as online sources can report misinformation (Suarez-Lledo & Alvarez-Galvez, 2021, Tamminga & Lipoff, 2021), that in turn may influence attitudes, behaviours, and decision making.

With regards to news media, research examining FPP-related information presented in news articles is scarce. Past research in this area has focused on breastfeeding (Jillani et al., 2020), vaccines (Wilcox et al., 2018), and obesity (van Hooft et al., 2018, Nimegeer et al., 2019) that has examined media framing of these public health topics. Little remains known on the extent to which the content of FPP-related news published online is derived from research evidence. Furthermore, given the immediate, on-demand nature of obtaining information from social media platforms, it is important for the FPP research field to understand what topics parents (users) are raising with regards to FPPs on such platforms. Indeed increased need for parenting

information is reflected in the various parenting websites available online to parents such as specialist platforms (https://www.parentchum.co.uk/) and webpages (https://www.goodhousekeeping.com/life/parenting/).

1.10 Chapter summary, thesis scope and research questions

The aim of this chapter was to illuminate the importance of investigating influential factors on FPPs.

The findings from the systematic literature review suggested that there is no difference between parents with healthy weight and overweight/obesity and their use of coercive control FPPs. However, it was also noted that these findings need to be interpreted with caution due to methodological rigour across studies. The majority of research identified in the systematic literature review utilised the Child Feeding Questionnaire that assesses just three coercive FPPs (restriction, pressure to eat, and monitoring) (Birch et al., 2001), and does not reflect the nuances of coercive control FPPs as outlined by O'Connor et al. (2017) and Vaughn et al. (2016).

Therefore, following the findings of the systematic review, this thesis had the broad aim to examine factors of importance regarding use of FPPs. Specific research questions (RQs) to be investigated were (Figure *4*):

RQ1   What are the differences between mothers with healthy weight and overweight/obesity with regards to their coercive FPPs? (Chapter 2; study 1)

Additional research questions indicated by the literature were:

RQ2   Do the FPPs experienced as a child differ between mothers with healthy weight and overweight/obesity? (Chapter 2; study 1)

RQ3   Do eating behaviours associated with FPPs differ between mothers with healthy weight and overweight/obesity? (Chapter 2; study 1)

RQ4   Are the ways in which mothers were provided food as a child, and their existing eating behaviours predictors of engagement in coercive FPPs? (Chapter 3; study 2)

RQ5   Is the presence of maternal mental health problems and self-efficacy for regulating food intake related to engagement in coercive FPPs among mothers with overweight/obesity? (Chapter 4; study 3)

Given the increasing influence that media platforms have on parenting in general, the following research questions arose:

RQ6   What is the content validity of claims made about FPPs in the news media? (Chapter 5; study 4)

RQ7   What topics related to FPPs are raised by users of a parenting-focused social media platform? (Chapter 6; study 5)

Figure 4: Visual representation of the areas of influences on food parenting practices examined in this thesis (solid lines denote examination of a direct influence (cross-sectional) on FPPs; dotted lines denote examination of an indirect influence (cross-sectional) on FPPs).
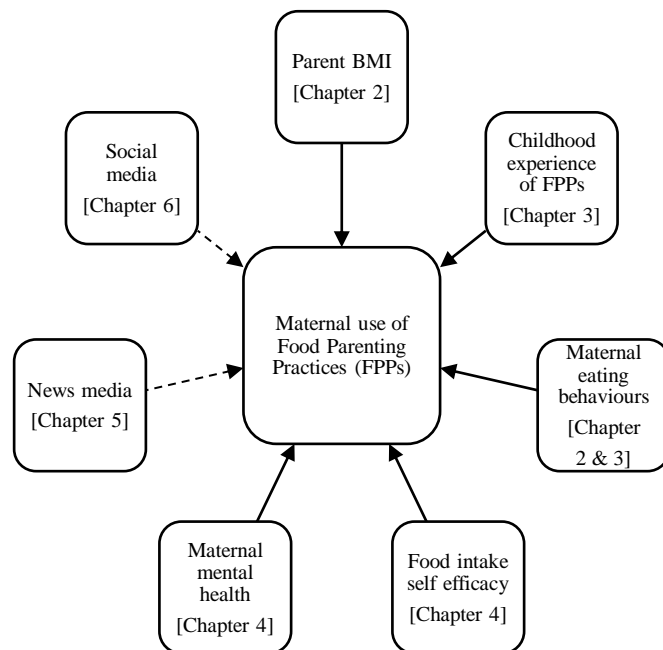
1.11 Structure of this thesis

This thesis presents new evidence regarding FPPs in order to extend current research and understanding. Each chapter presents a different study that employed an appropriate methodology for the research question that was aimed to be addressed. Therefore, each respective chapter presents its own introduction and rationale, method, and discussion.

Chapter 2 addresses RQs 1 to 3 and presents an analysis of differences between mothers with healthy weight and overweight/obesity on their childhood experiences of FPPs, current eating behaviours and psychopathology and current use of FPPs with their own child. Chapter 3 addresses RQ 4 and reports an examination of the predictors of maternal use of coercive FPPs. Chapter 4 addresses RQ 5 and examines the role of mental health and food intake self-efficacy in the use of coercive FPPs among mothers with overweight and obesity. Chapter 5 addresses RQ 6 and presents an evaluation of claims made about FPPs in the news media. Chapter 6 addresses RQ7 and presents an analysis of topics and concerns posted on a UK-based parenting social media platform. Finally, chapter 7 provides a summary of the study findings, main contributions to the research literature, implications, and recommendations for future research.

Chapter 2

The systematic literature review concluded that further research is needed to examine how FPPs vary by parental BMI. The wider research literature presented in the introduction also indicates that parents' experience of FPPs as a child and their eating behaviours affect their use of FPPs. What remains unknown however, is whether childhood experience of FPPs, current eating behaviours and current use of FPPs differ by BMI status. Therefore, it was important to investigate the differences among mothers with healthy weight and overweight/obesity with regards to their childhood experience of FPPs, their current eating behaviours, and current use of FPPs with their own child.

This chapter is in preparation for publication for *Appetite* as: Patel, C., Shuttlewood, E., Karasouli, E. and Meyer, C. Recollections of being fed as a child, eating psychopathology, and food parenting practices among of mothers with healthy weight and overweight/obesity: A replication and extension study.

Study 1: Recollections of being fed as a child, eating psychopathology, and food parenting practices among of mothers with healthy weight and overweight/obesity: A replication and extension study.

2.1 Abstract

Evidence is sparse concerning how experiences of being fed as a child are linked to adult eating psychopathology and to current use of food parenting practices (FPPs). Furthermore, little is known about how these associations might differ according to parental weight status. Mothers completed measures on their experiences of food parenting practices as a child, their current eating psychopathology, and current use of food parenting practices with their own child. Compared to mothers with healthy weight, mothers with overweight/obesity reported experiencing significantly more coercive control, and significantly less structure and autonomy promotion food parenting practices as a child. Mothers with overweight/obesity also report significantly higher eating disorder psychopathology when compared to mothers with healthy weight. With regards to current use of food parenting practices with their own child, compared to mothers with healthy weight, mothers with overweight/obesity report less role modelling of healthy food consumption. Correlational analyses among mothers with overweight/obesity show significant associations between their FPP experiences as a child, existing eating psychopathology, and use of FPPs with their child. The results provide preliminary evidence to suggest a lasting relationship between experiences of FPPs as a child, current eating behaviours and eating psychopathology, and FPPs among mothers with overweight/obesity. It may be helpful to target mothers' experiences of being provided food as a child and their current relationships with food as part of any intervention to modify FPPs in family-based interventions.

2.2 Introduction

Parental weight status is an extensively researched determinant of a child's weight status (e.g., Boswell et al., 2018a, Heslehurst et al., 2019, Reilly et al., 2005, Whitaker et al., 2010). A child is more likely to become overweight or obese when they have at least one parent who has overweight or obesity (Whitaker et al., 2010), with increasing risk when both parents have overweight/obesity (Whitaker et al., 2010). Furthermore, having overweight/obesity as a child is likely to be retained into adulthood (Biro & Wien, 2010, Singh et al., 2008).

The Behavioural Susceptibility Theory posits there is an interaction between genetics and the environment that contribute to eating behaviours that potentially increase risk of weight gain and obesity (Llewellyn & Fildes, 2017). Despite the role of genetics in obesity development, it is still important to target behaviours that are modifiable.

Since children model themselves on parental behaviours (Blissett, 2018), food parenting practices (FPPs) are potentially useful targets in family- and parent-based interventions. FPPs are used by parents to influence their child's food intake and relationship with food (e.g., Birch & Fisher, 2000, Vaughn et al., 2016), and fall broadly into three categories: coercive control, structure, and autonomy promotion (Vaughn et al., 2016). Examples of coercive control FPPs are restriction, pressure to eat, food-based threats and bribes, and the use of food to control negative emotions. Examples of structure and autonomy promotion FPPs include monitoring, modelling, nutrition education, and encouragement.

Coercive control FPPs are behaviours focused on parental feeding goals (e.g., food-based threats and bribes in exchange for good behaviour). Because of this, the child's internal cues of hunger and satiety are not considered, which consequently impact children's eating behaviours and weight (e.g., Vaughn et al., 2016, Yee et al., 2017). In contrast, structure, and autonomy promotion FPPs involve supporting the child to consume a healthy diet and develop independence around choosing foods for themselves (Vaughn et al., 2015).

These latter groups of FPPs aim to support the child to consume a healthy diet and foster self-regulation while considering the emotional and psychological needs of the child, thereby favourably impacting the child's eating behaviours and weight status (e.g., Frankel et al., 2018, Vaughn et al., 2016, Yee et al., 2017).

Maternal obesity has a stronger influence on child BMI compared to paternal obesity (e.g., Heslehurst et al., 2019, Linabery et al., 2013). Research evidence indicates a relationship between maternal weight status and use of FPPs. For instance, research reports that mothers with overweight and obesity assign more control to their child around eating, encourage less balance and variety, provide a less healthy home food environment, and engage in less healthy food role modelling (Haycraft et al., 2017). Additionally, mothers with obesity also report significantly less control over their child's intake (Wardle et al., 2002). The evidence around the engagement in coercive FPPs however remains unclear. Although Haycraft et al. (2017) and Wardle et al. (2002b) assessed FPPs using two different measures, both studies report no significant difference in levels of use of coercive FPPs between mothers with healthy weight vs those with overweight/obesity. Furthermore, a recent study reports a significant negative relationship between maternal BMI and coercive FPPs, where engagement in pressure to eat and restriction decreases with maternal BMI (Norton et al., 2021). In contrast, in a large cohort study (N = 3,514), it has been identified that mothers with a higher BMI are more likely to adopt restrictive FPPs (Derks et al., 2019), and increasingly engage in higher covert control (Goncalves et al, 2017). Given these mixed results and limited research in this area, further investigation is warranted.

Despite vast evidence showing links between FPPs and children's eating behaviours and weight status (e.g., Derks et al., 2019, Farrow et al., 2015, Finnane et al., 2017, Shloim et al., 2015, Spill et al., 2019), there is limited evidence as to whether experiences of being provided food as a child are linked to eating behaviours in adulthood (e.g., Larsen et al., 2015). Previous research shows that university/college students' existing eating behaviours such as finishing the food on their plate, having a dessert, and eating

scheduled meals are related to the FPPs they experienced as a child (Branen & Fletcher, 1999). In a similar sample, reports of experiencing pressure to eat in childhood predict higher levels of disordered eating, and lower levels of intuitive eating (Ellis et al., 2016) and recollections of parents use of food for reward or food withheld for punishment in childhood is linked to higher levels of binge-eating and dietary restraint (Puhl & Schwartz, 2003) . Furthermore, parents with eating disorder psychopathology are more likely to report child eating disorder characteristics including binge-eating and compulsive exercise (Lydecker & Grilo, 2017a) . However, one limitation of the research to date is the lack of investigation of these variables by weight status.

It is well established that parental eating psychopathology is an important area that guides food-related parenting practices. For instance, it has been found that maternal emotional overeating is positively associated with the use of food as a reward and overt restriction (Miller et al., 2020). In this study, it was found that maternal food responsiveness is also positively associated with the use of food as a reward, persuasive feeding, and overt restriction (Miller et al, 2020). In other studies, it has been shown that maternal emotional overeating and food responsiveness are positively associated with use of non-responsive FPPs (Morrison et al, 2013, Wardle et al, 2002). Longitudinal research reports that mothers who are preoccupied with their own weight and food intake report engaging in higher levels of restriction of their daughter's food intake (Francis & Birch, 2005). Likewise, mothers who are restrained in their food intake are more likely to restrict their child's food intake (Birch & Fisher, 2000, Brown & Lee, 2011). In a later study, disordered eating symptomology was found to be associated with increased use of restriction and covert control FPPs (Gonçalves et al., 2017). Supporting this result, a recent study reports that maternal eating disorder symptoms are strong predictors of the use of pressure to eat and restriction (Norton et al., 2021). It has also been found that FPPs mediate the relationship between maternal and child eating behaviours (Miller et al., 2020), further highlighting the importance of investigating maternal eating behaviours in parallel to FPPs.

Given the evidence to date it is also necessary to extend research to examine links between maternal weight status and FPPs to include maternal eating behaviours. Parents who are invested in their own weight and have difficulties controlling their own food intake, potentially engage in controlling FPPs to attempt to prevent their child developing overweight (e.g., Costanzo & Woody, 1985, Damiano et al., 2016, Haines et al., 2018, Scaglioni et al., 2018). In addition, there is a suggestion that parents engage in FPPs that are responsive to child cues of hunger and satiety, and FPPs that implement structure and promote child autonomy in order to compensate for their own eating behaviours and weight (e.g., Daniels, 2019, Haycraft, 2020). Indeed, parents are gatekeepers of their child's food intake, and so their perceptions of their own eating behaviours and relationship with food will likely impact their child's food intake, relationship with food, and potentially their BMI.

In summary, a limited amount of previous research indicates differences in the use of food-related parenting practices by parental weight status. What remains unknown however, is whether there are differences in how mothers remember being provided food as a child and potential links to eating psychopathology and feeding behaviours by weight status. Therefore, the current study aims to partially replicate and extend previous research by investigating differences between mothers with healthy weight, and overweight/obesity with respect to their experiences of being fed as a child, their own levels of eating psychopathology and their use of FPPs with their own child. The following hypotheses were made:

1. Mothers with overweight/obesity would report experiencing significantly more coercive control FPPs as a child, compared to mothers with healthy weight.
2. Mothers with overweight/obesity would report engaging in higher levels of eating disorder psychopathology, compared to mothers with healthy weight.
3. Following the mixed findings reported across studies by Derks et al. (2019), Gonçalves et al. (2017), Haycraft et al. (2017) and Wardle et al. (2002b), it was predicted that mothers with overweight/obesity

would report higher engagement in coercive control, and less engagement in structure and autonomy promotive food-related parenting practices, compared to mothers with healthy weight.

4. There would be associations between experiences of childhood FPPs, eating disorder psychopathology and eating behaviours, and coercive control FPPs among mothers with overweight/obesity.

2.3 Methods
2.3.1 Participants and procedure

Mothers of children between the ages of 2 and 16 (N = 924) were recruited via social media platforms (e.g., Facebook, Twitter, Reddit), a crowdsourcing platform (Prolific Academic), in-person via primary and secondary schools, community services across the UK, and in-person at a Weight Management Service from a hospital in the West Midlands, UK. Mothers were eligible to participate if they regarded themselves as being primarily responsible for preparing meals and/or providing food to their child(-ren). Mothers and/or children were excluded if they reported a medical condition that affects their ability to eat or their eating behaviours (n = 14). Mothers completed a series of demographic questions and self-report questionnaires described below. The content of the paper and online questionnaire pack was identical. Mothers were asked to base their responses on their youngest child if they had more than one child. The study conformed to the Declaration of Helsinki and was approved by the University of Warwick's Biomedical and Scientific Research Ethics Committee (BSREC 100/18-19) and the NHS Health Research Authority Research Ethics Committee (17/WM/0360).

2.3.2 Measures
2.3.2.1 Demographic questionnaire

All participants completed a background information questionnaire to provide information about their gender, age, level of education, occupation, ethnicity, height, and weight. Maternal BMI was calculated using self-report height and weight data. They then completed the following self-report measures in the order presented below.

2.3.2.2 Food parenting practices

The Comprehensive Feeding Practices Questionnaire (CFPQ (Appendix B); Musher-Eizenman & Holub (2007)) is a 49-item measure assessing parents' FPPs. The measure contains the following twelve subscales: child control, emotion regulation, encourage balance and variety, environment, food as reward, involvement, modelling, monitoring, pressure, restriction for health, restriction for weight control, and teaching about nutrition. Items are written as a statement or question, for example, "I encourage my child to eat a variety of foods." High subscales scores indicate greater/more frequent use of the feeding practice. Cronbach's alpha values for subscales ranged from 0.55 to 0.91 in the present sample. The teaching about nutrition subscale demonstrated weak reliability ($\alpha = 0.55$) and was therefore excluded from the analysis. Participating mothers were asked to consider their youngest child when completing the CFPQ. The measure and its subscales have been used extensively with community samples and with parents of younger and older children with adequate reliability and validity (e.g., Haycraft et al., 2017, Holley et al., 2018, Holley et al., 2020, Musher-Eizenman & Holub, 2007, Melbye et al., 2011, Jansen et al., 2021).

2.3.2.3 Experiences of parental food parenting practices

For the current study, the CFPQ was modified to capture mothers' childhood experiences of FPPs (Retrospective Comprehensive Feeding Practice Questionnaire (rCFPQ; Appendix C)). The rCFPQ comprises 49-items that align with the CFPQ but are based on recall; for example, "My parent believed I should always eat all of the food on my plate". Higher mean subscales scores indicate greater/more frequent experience of the feeding practice. Cronbach's alpha values for subscales ranged from 0.57 to 0.96 in the present sample. Several studies have used a similar approach and have modified the subscales of the CFPQ with community samples and have demonstrated good levels of reliability (Ellis et al., 2018, Farrow, 2014, Goldstein et al., 2017, Małachowska & Jeżewska-Zychowicz, 2021, Roberts et al., 2020, Tan et al., 2016b). The teaching about nutrition subscale

demonstrated weak reliability in the present study ($\alpha = 0.57$) and was therefore excluded from the analysis.

2.3.2.4 Maternal eating behaviours

The Dutch Behaviour Eating Behaviour Questionnaire (DEBQ (Appendix D); van Strien et al. (1986)) comprises 33-items assessing restrained, external, and emotional eating. High mean subscales scores indicate more frequent occurrence of the eating behaviour. All subscales demonstrated satisfactory reliability ($\alpha = 0.89$ to 0.96) in the present sample. This measure has been used extensively with community samples with adequate reliability and validity (e.g., Damiano et al., 2016, van Strien et al., 1986, Wardle, 1987, Zarychta et al., 2019).

2.3.2.5 Eating disorder psychopathology

The Eating Disorder Examination Questionnaire (EDE-Q (Appendix E); Fairburn & Beglin (1994)) is a 28-item measure that assessed eating disorder psychopathology. The questionnaire comprises four subscales: dietary restraint, eating concern, shape concern and weight concern. High mean subscales scores indicate more frequent occurrence of the eating behaviour. This measure has been used extensively with community samples and demonstrates adequate reliability and validity (e.g., Berg et al., 2012, Lydecker & Grilo, 2017b, Mond et al., 2004a, Mond et al., 2004b). Cronbach's alpha values for subscales ranged from $\alpha = 0.83$ to 0.91 in the current sample.

2.3.3 Power calculation

G*Power analysis software (Erdfelder et al., 1996) was used to determine the sample size a priori. To test the differences between mothers with healthy weight and overweight/obesity with 0.90 power, significance set at 0.05, and effect size of 0.5 (medium), the minimum sample size was determined to be N = 172 mothers. However, recruitment aimed for at least N = 200 mothers to account for incomplete questionnaire data.

2.3.4 Data analysis

Data were analysed using SPSS version 26. Data were split according to maternal BMI into two groups, healthy weight (BMI $19.0 \leq 24.9$) and overweight/obese (BMI ≥ 25.0) (NHS, 2019a) respectively. Tests of normality indicated that data were not normally distributed and therefore non-parametric tests were employed. To test the first, second and third hypotheses, Mann-Whitney U tests were conducted to identify the differences between mothers with health weight and overweight/obesity. To test the fourth hypothesis, Spearman's Rho correlations were run using rCFPQ, EDEQ, DEBQ and CFPQ data from mothers with overweight/obesity. To correct for multiple comparisons, statistical tests were conducted using Bonferroni adjusted alpha levels of $\alpha = 0.002$. No subgroup analyses based on demographic characteristics (e.g., ethnicity) were performed due to small sample sizes.

2.4 Results
2.4.1 Descriptive statistics

Table 3 provides descriptive statistics and test of difference between mothers of different weight status with respect to rCFPQ, DEBQ, EDEQ, and CFPQ variables. In general, mean scores on the rCFPQ, DEBQ, and CFPQ were broadly comparable to those reported in other studies with similar samples of mothers (e.g., Ellis et al., 2016, Haycraft et al., 2017, Pratt et al., 2019, Schrempft et al., 2016, White et al., 2022). EDEQ subscale scores were slightly higher than scores previously reported in other studies (e.g., Haycraft et al., 2015, Lewis et al., 2015, Palfreyman et al., 2014).

Mothers (Total N = 924; healthy weight, n = 392; overweight/obese, n = 532) had a mean age of 37 years (range = 21 - 59, SD = 7.7). The participants' youngest child was on average 5.5 years old (SD = 4.1). Most mothers reported being of White ethnicity (91%), 37% were educated to degree level, and in a form of employment (full time, 38%; part time, 29%; self-employed, 8%).

Table 3: Descriptive statistics and tests of difference of childhood food parenting practices, maternal eating psychopathology, and current use of food parenting practices by maternal Body Mass Index (BMI).

Study variables	Mothers with healthy weight (n = 330 – 392)		Mothers with overweight/obesity (n = 447 – 532)		Mann Whitney Z
	Mean	SD	Mean	SD	
Maternal BMI (Overall N = 924)	22.36	1.68	32.05	6.71	**26.00***
Retrospective Comprehensive Feeding Practices Questionnaire (rCFPQ)					
Child control	2.24	0.88	2.25	0.95	-0.14
Emotion regulation	1.96	0.87	2.22	1.07	2.60
Encourage balance and variety	3.77	1.15	3.46	1.20	**-3.40***
Environment	3.50	1.01	3.09	1.10	**-4.60***
Food as reward	2.68	1.19	3.15	1.25	**4.60***
Involvement	2.77	1.28	2.41	1.28	**-3.27***
Modelling	3.34	1.31	2.85	1.40	**-4.18***
Monitoring	3.04	1.26	2.73	1.29	-2.79
Pressure to eat	3.81	1.10	4.00	1.04	2.17
Restriction for health	2.81	1.26	3.25	1.29	**4.19***
Restriction for weight control	1.78	0.89	2.23	1.12	**4.96***
Dutch Eating Behaviour Questionnaire (DEBQ)					
Restraint	2.75	0.97	3.06	0.82	**4.32***
Emotional	2.54	.095	3.09	1.04	**6.65***
External	3.07	0.65	3.34	0.74	**4.55***

Eating Disorder Examination Questionnaire (EDEQ)					
Restraint	2.34	1.57	2.91	1.65	**4.80***
Eating concern	1.70	1.07	2.45	1.49	**6.66***
Shape concern	3.08	1.65	4.50	1.56	**9.51***
Weight concern	2.67	1.59	4.27	1.49	**10.84***
Comprehensive Feeding Practices Questionnaire (CFPQ)					
Child control	2.70	0.69	2.66	0.69	-0.66
Emotion regulation	1.90	0.70	1.91	0.72	0.08
Encourage balance and variety	4.63	0.44	4.61	0.41	-0.68
Environment	3.87	0.77	3.69	0.75	**-3.06***
Food as reward	2.54	1.19	2.60	1.15	0.68
Involvement	3.86	0.98	3.82	1.06	-0.02
Modelling	4.42	0.69	4.17	0.78	**-4.51***
Monitoring	4.03	0.94	3.94	0.95	-1.53
Pressure to eat	2.85	1.04	2.68	1.07	-1.98
Restriction for health	3.56	1.18	3.69	1.15	1.42
Restriction for weight control	1.88	0.80	1.98	0.81	1.94

*Significant at $p < 0.002$ (with Bonferroni correction applied).

2.4.2 Childhood food parenting practices

In comparison to mothers with healthy weight, mothers with overweight/obesity reported significantly higher scores on rCFPQ food as a reward, rCFPQ restriction for health, rCFPQ restriction for weight control, and significantly lower scores on rCFPQ encouragement of balance and variety, rCFPQ healthy home food environment, rCFPQ involvement in meal planning and preparation and rCFPQ parental role modelling as a child. There were no significant differences on the other rCFPQ subscales (Table 3).

2.4.3 Maternal eating behaviours and eating disorder psychopathology

In comparison to mothers with healthy weight, mothers with overweight/obesity report significantly higher scores on DEBQ restrained, emotional, and external eating behaviours. Furthermore, when compared to mothers with healthy weight, mothers with overweight/obesity report significantly higher scores on EDEQ restraint, and EDEQ concern about their eating, shape, and weight (Table 3).

2.4.4 Food parenting practices

In comparison to mothers with healthy weight, mothers with overweight/obesity report a significantly lower score on CFPQ environment and CFPQ modelling. There were no significant differences on the other CFPQ subscales (Table 3).

2.4.5 Associations between experience of coercive control food parenting practices as a child and eating psychopathology among mothers with overweight/obesity

To test for relationships between rCFPQ, EDEQ, and DEBQ variables, two-tailed correlations were run using data from mothers with overweight/obesity (Table 4).

Mothers' rCFPQ emotion regulation score was significantly (positively) associated with DEBQ emotional and external eating and EDEQ eating, shape and weight concern scores.

Mothers' rCFPQ food as a reward score was significantly (positively) associated with all DEBQ and EDEQ subscale scores.

Mothers' rCFPQ pressure to eat score was significantly (positively) associated with all DEBQ subscale scores, and EDEQ eating, shape and weight concern scores .

Finally, mothers' rCFPQ restriction for health score was significantly (positively) associated with DEBQ emotional eating score.

2.4.6 Associations between maternal eating psychopathology and use of food parenting practices

To test for relationships between the EDEQ, DEBQ and CFPQ, two-tailed correlations were run (Table 5).

Among mothers with overweight/obesity, EDEQ restrained eating, and eating, shape and weight concern score was significantly (positively) associated with CFPQ encourage balance and variety score. EDEQ eating, shape and weight concern scores was significantly (positively) associated with CFPQ restriction for health and CFPQ restriction for weight score. EDEQ restrained eating score was significantly (positively) associated with CFPQ environment and CFPQ modelling score.

Mothers' DEBQ restrained eating was significantly (positively) associated with CFPQ encourage balance and variety, CFPQ environment, CFPQ modelling, CFPQ monitoring, CFPQ restriction for health, and CFPQ restriction for weight control scores. Mothers' DEBQ emotional eating score was significantly (positively) associated with CFPQ emotion regulation score, and significantly (negatively) associated with CFPQ monitoring score. Finally, mothers' DEBQ external eating score was significantly (positively) associated with CFPQ child control, CFPQ emotion regulation, CFPQ food as a reward, and CFPQ restriction for health score. Mothers' DEBQ external eating score was significantly (negatively) associated with the CFPQ environment score.

2.4.7 Associations between experience of coercive control food parenting practices as a child and use of food parenting practices among mothers with overweight/obesity

To test for relationships between rCFPQ and CFPQ variables, two-tailed correlations were run.

Among mothers with overweight/obesity, rCFPQ child control score was significantly associated (positively) with CFPQ child control, CFPQ emotion regulation, CFPQ food as reward, and CFPQ restriction for weight score. Mothers' rCFPQ child control score was also significantly associated (negatively) with CFPQ environment and CFPQ monitoring score. rCFPQ emotion regulation score was significantly associated (positively) with CFPQ child control, CFPQ emotion regulation, CFPQ food as a reward, and CFPQ pressure to eat scores. rCFPQ food as reward score was significantly associated (positively) with CFPQ food as a reward and CFPQ pressure to eat scores. rCFPQ restriction for health score was significantly associated (positively) with the CFPQ modelling and CFPQ monitoring score (Table 5).

Table 4: Spearman's Rho correlation between maternal experiences of being provided food as a child and maternal eating psychopathology among mothers with overweight and obesity (ns range from 447 – 532 due to missing data).

rCFPQ	DEBQ			EDEQ			
	Restraint	Emotional	External	Restraint	Eating concern	Shape concern	Weight concern
Child control	-0.013	0.097	**0.148***	0.037	**0.160***	**0.136***	**0.177****
Emotion regulation	0.016	**0.332****	**0.257****	0.036	**0.247****	**0.141***	**0.228****
Encourage balance & variety	-0.102	-0.091	**-0.155***	**-0.149***	**-0.229****	**-0.230****	**-0.278****
Environment	-0.006	**-0.163****	**-0.199****	-0.084	**-0.223****	**-0.208****	**-0.280****
Food as reward	**0.148***	**0.224****	**0.186****	**0.148***	**0.236****	**0.148****	**0.232****
Involvement	-0.106	-0.110	**-0.174****	-0.116	**-0.149***	**-0.145***	**-0.200****
Modelling	-0.053	-0.074	-0.095	**-0.148***	**-0.178****	**-0.177****	**-0.263****
Monitoring	0.083	-0.043	-0.080	-0.070	-0.116	-0.114	-0.122
Pressure to eat	**0.170****	**0.154***	**0.207****	0.135	**0.191****	**0.187****	**0.149***

	DEBQ			EDEQ			
rCFPQ	Restraint	Emotional	External	Restraint	Eating concern	Shape concern	Weight concern
Restriction for health	0.008	**0.137***	0.015	-0.051	0.105	0.009	0.042
Restriction for weight	0.025	0.069	-0.013	-0.111	0.070	0.009	0.025

*$p < 0.002$ considered significant according to Bonferroni correction; ** $p < 0.001$

Table 5: Spearman's Rho correlation between maternal experiences of being provided food as a child, maternal eating psychopathology and use of food parenting practices among mothers with overweight and obesity (ns range from 447 – 532 due to missing data).

Variables	Comprehensive Feeding Practices Questionnaire (CFPQ)										
	Child control	Emotion regulation	Encourage balance & variety	Environment	Food as reward	Involvement	Modelling	Monitoring	Pressure to eat	Restriction for health	Restriction for weight
Retrospective Comprehensive Feeding Practices Questionnaire (rCFPQ)											
Child control	**0.279****	**0.145***	0.016	**-0.151***	**0.156***	-0.078	-0.078	**-0.204****	0.087	0.026	**0.158***
Emotion regulation	**0.213****	**0.370****	-0.044	-0.089	**0.138***	-0.048	-0.031	-0.112	**0.195****	0.012	0.119
Encourage balance & variety	**-0.153***	-0.034	0.104	**0.132***	0.055	0.135	**0.185****	0.086	0.048	**-0.200****	**-0.132***
Environment	**-0.151***	-0.106	0.006	**0.195****	-0.060	0.107	**0.169****	0.019	-0.018	**-0.150***	-0.136
Food as reward	0.098	0.137	0.107	-0.013	**0.271****	0.088	0.075	0.064	**0.161***	0.033	0.166
Involvement	-0.086	-0.036	-0.032	0.103	-0.026	0.015	0.057	0.035	0.077	**-0.164****	-0.086
Modelling	-0.132	0.063	-0.003	0.107	0.066	0.094	**0.205****	0.077	0.050	**-0.151***	-0.117
Monitoring	**-0.160***	-0.100	0.030	0.079	0.001	0.130	**0.181****	**0.296****	-0.007	-0.038	-0.057
Pressure to eat	0.029	0.074	0.030	0.103	-0.017	0.118	0.139	0.120	0.054	-0.045	0.047
Restriction for health	-0.130	-0.009	0.010	0.022	0.059	0.025	**0.165**[**]	**0.242**[**]	0.023	0.028	-0.032

Restriction for weight	-0.053	-0.044	-0.027	-0.010	0.031	0.118	0.063	0.119	-0.069	-0.034	0.121
Eating Disorder Examination Questionnaire (EDEQ)											
Restraint	0.001	-0.036	**0.230**[**]	**0.237**[**]	-0.068	0.075	**0.151**[*]	0.113	0.001	0.072	0.123
Eating concern	0.017	0.097	**0.146**[*]	-0.079	0.124	0.004	-0.034	0.047	0.110	**0.172**[**]	**0.225**[**]
Shape concern	0.033	0.012	**0.175**[**]	-0.021	0.065	0.000	0.038	0.036	0.074	**0.281**[**]	**0.247**[**]
Weight concern	0.036	0.052	**0.192**[**]	0.002	0.098	-0.058	0.014	0.023	0.110	**0.278**[**]	**0.248**[**]
Dutch Eating Behaviour Questionnaire (DEBQ)											
Restrained eating	-0.086	0.012	**0.198**[**]	**0.205**[**]	-0.015	0.126	**0.207**[**]	**0.159**[*]	0.069	**0.146**[*]	**0.200**[**]
Emotional eating	0.080	**0.277**[**]	-0.004	-0.100	0.063	-0.039	-0.010	**-0.144**[*]	0.067	0.104	0.053
External eating	**0.168**[**]	**0.321**[**]	0.052	**-0.196**[**]	**0.163**[**]	-0.056	-0.002	-0.080	0.119	**0.218**[**]	0.132

[*]$p <0.002$ considered significant according to Bonferroni correction; ** $p<0.001$

2.5 Discussion

The study aimed to explore differences between mothers with healthy weight and mothers with overweight/obesity with regards to their reports of their childhood FPPs, their current eating psychopathology, and current use of FPPs. It also aimed to understand whether there were associations between mothers' childhood experience of FPPs, current eating psychopathology, and current use of coercive control FPPs.

It was first predicted that mothers with overweight/obesity would report experiencing more coercive control FPPs as a child, compared to mothers with healthy weight. The findings supported the hypotheses. In comparison to mothers with healthy weight, the findings show that mothers with overweight/obesity report experiencing significantly more use of food as a reward, more restriction for health reasons, and more restriction for weight control as a child. These findings suggest that mothers with overweight/obesity experienced fewer healthy FPPs as a child, than mothers with healthy weight.

The second hypothesis predicted that mothers with overweight/obesity would report engaging in higher levels of eating disorder psychopathology, compared to mothers with healthy weight. The findings supported the hypothesis. In comparison to mothers with healthy weight, mothers with overweight/obesity report more restrained, emotional, and external eating, all of which have been implicated in the development of overweight/obesity. Additionally, mothers with overweight/obesity report significantly higher disordered eating symptomology. Mothers with overweight/obesity report more concern about their eating, shape, and weight, when compared to mothers with healthy weight. The magnitude of these eating behaviour and psychopathology differences between the two groups of mothers were small to medium (Cohen, 2013). These findings suggest that mothers with overweight/obesity engage in eating behaviours that contribute to the development of overweight/obesity. The finding that mothers with overweight/obesity have higher levels of restrained, and emotional eating

when compared to mothers with healthy weight aligns with previous research by Wardle and Colleagues (2002b). The current study used the Dutch Eating Behaviour Questionnaire, and Eating Disorder Examination Questionnaire, however other research investigating eating behaviours using the Three Factor Eating Questionnaire have reported similar results among individuals with obesity (Ernst et al., 2015).

The third hypothesis aimed to build on previously reported mixed findings (e.g., Derks et al., 2019, Gonçalves et al., 2017, Haycraft et al., 2017, Wardle et al., 2002b). It was predicted that mothers with overweight/obesity would report higher engagement in coercive control, and less engagement in structure and autonomy promotive food-related parenting practices, compared to mothers with healthy weight. The present findings revealed that in comparison to mothers with healthy weight, mothers with overweight/obesity report significantly less modelling of healthy eating and providing a less healthy home food environment, thus partially supporting the hypothesis. This finding supports a previous research findings reporting that mothers with overweight/obesity role model healthy food consumption less (Haycraft et al., 2017).

Despite these findings, the results also show that mothers with overweight/obesity are no more likely to engage in coercive FPPs than healthy weight mothers. Scores on the CFPQ subscales were comparable between mothers with healthy weight, and overweight/obesity, with no significant difference in the frequency of use of coercive FPPs. The findings imply that mothers with overweight/obesity are no more likely to use FPPs centred around giving their child more control around eating, emotion regulation, use food as a reward, pressure their child to eat, and restrict their child's food intake more than mothers with healthy weight. This is consistent with previous study findings (Wardle et al., 2002b), and systematic review findings reporting that multiple studies indicate that there is no difference in use of coercive FPPs such as use of food to control negative emotions, use of food-based threats and bribes, pressure to eat, and restriction by maternal weight status (Patel et al., 2018). Based on the findings in the current study,

it is possible that mothers compensate for their own experiences, eating behaviours, and weight by not engaging in such FPPs they are aware that impact their child's eating behaviours, relationship with food and weight.

However, for mothers with overweight/obesity in the current sample, experiences of coercive/controlling FPPs as a child were associated with their eating psychopathology that is known to contribute towards excess weight gain. The results show that in this subgroup of mothers, disordered eating psychopathology was positively associated with their current use of coercive/controlling FPPs, including increased child control, the use of food to regulate their child's emotions, the use of food as a reward, pressure to eat and restriction.

In summary, the results extend past work by highlighting that, in comparison to mothers with healthy weight, mothers with overweight and obesity report experiencing more coercive control FPPs as a child, engage in eating behaviours known to contribute to the development of obesity and disordered eating, provide a less healthy home food environment and role model healthy food consumption less in front of their child. In addition to these results, results from mothers with overweight/obesity in particular show that there are positive associations between mothers' experiences as a child, their current eating behaviours and eating psychopathology, and engagement in coercive control FPPs. Such results are concerning as they highlight the potential for a generational transmission of FPPs and eating behaviour in this sample.

There are limitations to the current study that include the cross-sectional nature of the data, and reliance on recalled childhood experiences of FPPs. The most accurate, albeit complex, way to approach this study again would be to analyse data collected longitudinally. Most of the sample were white and educated to degree level limiting the generalisation of findings to other ethnicities and education level. It is also well-known that parental engagement in FPPs is complex and bidirectional, with many factors contributing to their use, including child BMI, child temperament (Bergmeier et al., 2014b), and parental concern about their child's weight (Derks et al.,

2019) which were not explored in the current study. One final limitation is the use of self-reported their height and weight which may have resulted in an inaccurate BMI status (e.g., Anthony et al., 2020). Strengths of the study include the large sample size, and spectrum of information regarding childhood FPPs, eating behaviours, disordered eating psychopathology and use of FPPs from the same sample. Prior to this study, such findings are extrapolated from existing evidence.

2.6 Conclusion

The findings shed an insight into the experiences mothers encountered as a child, and it is important to understand the mechanisms via which unhealthy relationships with food are potentially passed through generations by maternal weight status. Further, the study findings are important for parent and family interventions targeting family and child weight. There may be more value in educating parents about their own eating behaviours rather than focussing on the impact of FPPs. Indeed, obtaining an improved understanding of parental experiences as a child around FPPs may aid the support provided by health care professionals.

Chapter 3

Study 1 (chapter 2) identified that mothers with overweight/obesity experience significantly more coercive control, and less structure and autonomy promotion food parenting practices as a child. Mothers with overweight/obesity also reported higher eating disorder psychopathology when compared to mothers with healthy weight. With regards to current food parenting practices, compared to mothers with healthy weight, mothers with overweight/obesity report less current role modelling of healthy food consumption. Although these differences by maternal weight status were identified, what remains unclear is whether mothers' childhood experience of FPPs and their current eating behaviours effect their current use of FPPs. Therefore, study 2 (chapter 3) examines the relationships between mothers' childhood experience of FPPs, their current eating behaviours and current use of FPPs with their own child.[1]

This chapter has been published as: Patel, C., Shuttlewood, E., Karasouli, E. and Meyer, C., (2022). Mothers' experiences of their own parents' food parenting practices and use of coercive food-related practices with their children. *Appetite*, *175*, p.106078.

Minor formatting changes have been made to ensure consistency with the rest of this thesis.

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[1] This chapter used the same data collected from participants recruited from the Weight Management Service that were included in chapter 2 (study 1).

Study 2: Mothers' experiences of their own parents' food parenting practices and use of coercive food-related practices with their children

3.1 Abstract

The current research examines the relationships between mothers' experiences of the ways in which they were provided food as a child, their current eating behaviours, and their use of coercive food parenting practices with their own child. Mothers (N = 907 (M = 37 years, SD = 7.7)) completed an online/paper survey that included validated measures of food parenting practices and eating behaviours. Regression analyses show that mothers' experiences of being provided food as a child, and their current eating behaviours are significant unique predictors of engagement in coercive food-related parenting practices with their child.

Exploratory mediation analyses further show that the relationship between mothers' experiences of being provided food as a child, and use of coercive food-related parenting practices with their own child, is partially mediated by mothers' eating behaviours. The findings indicate concordance between mothers' experiences of being provided food as a child and use of the same coercive food-related parenting practices with their child. Furthermore, maternal experiences of food-related parenting practices as a child are the strongest predictors of use coercive food parenting practices with their own child. There may be value in focusing on the food-related experiences mothers had as a child in addition to their existing eating behaviours prior to food-related parenting practice intervention. Longitudinal research is needed to strengthen the current findings and to further understand the links identified.

3.2 Introduction

Parents are influential in the intergenerational transmission of obesity and eating disorders (Lee et al., 2019, Lydecker & Grilo, 2016, Watson et al., 2018, Ziauddeen et al., 2020), where child obesity risk increases with parental weight (Health Survey for England, 2019, Whitaker et al., 2010). One environmental factor potentially implicated in this transmission is parental use of food parenting practices (FPPs).

FPPs are behaviours used by parents to influence their child's eating behaviours and food intake, and are categorised under three overarching constructs: coercive control, structure, and autonomy support (Vaughn et al., 2016). Examples of coercive control FPPs are food restriction, pressure to eat, food-based threats and bribes, and the use of food to control negative emotions. Coercive control FPPs aim to fulfil parent centred goals and desires with regards to their child's food consumption and eating behaviours. Consequently such FPPs can override a child's internal cues of hunger and satiety (Birch & Fisher, 1998). In contrast, examples of FPPs that implement structure and support child autonomy are healthy food role modelling, a healthy home food environment, monitoring, meal and snack routines, limited or guided choices, nutrition education, and child involvement (Vaughn et al., 2016). Therefore, coercive control FPPs are of paramount importance to research since they have been found to be positively associated with unhealthy child and adolescent eating behaviours and outcomes, such as eating in the absence of hunger and Body Mass Index (BMI) (Boots et al., 2019, Vollmer & Baietto, 2017).

Eating behaviours typically fall into three distinct areas: emotional eating (eating in response to one's emotions), external eating (eating in response to stimuli (sight, taste, smell) in the environment), and restrained eating (eating less to deliberately maintain or lose weight) (van Strien et al., 1986). Rather than responding to one's internal cues of hunger and satiety, these eating behaviours are suggested to be in response to emotions and external factors, and contribute to the development of overweight and obesity (van Strien et al., 1986). In addition to FPPs, maternal eating behaviours are a known

influence on children's eating behaviours. For instance, it has been found that maternal emotional eating positively predicts daughters' emotional eating; maternal restrained eating positively predicts daughters' restrained eating, and maternal emotional and external eating positively predict sons' emotional and external eating behaviours (Zarychta et al., 2019). Maternal external eating has also been found to be positively associated with children's picky eating and desire to eat (Morrison et al., 2013).

Research evidence suggests that maternal eating behaviours are implicated in use of coercive FPPs (Saltzman et al., 2016). For example, high levels of maternal restrained eating positively predict the use of food restriction of daughters' eating (Birch & Fisher, 2000), and high levels of maternal emotional eating are positively associated with the use of food to control negative emotions and food-based threats and bribes (Wardle et al., 2002a). More recent research show that parents' diets and eating behaviours are consistent with use of FPPs with adolescents, i.e., parental consumption of junk food positively influences the availability of junk food in the home environment (Fleary & Ettienne, 2019). Furthermore, systematic reviews of maternal eating disorders and child development report that mothers with eating disorders are likely to have difficulties feeding and with eating behaviours such as breast feeding, establishing feeding routines, and engagement in coercive control FPPs (Chapman et al., 2021, Martini et al., 2020), thus contributing to the transmission of eating behaviours from parent to child.

Experiences of being provided food as a child and parental use of coercive FPPs have been previously explored in order to understand their relationship to adult eating behaviour outcomes. Early qualitative research found that adults with obesity recalled experiencing food rules and having to clear their plate at each mealtime, suggesting that this childhood experience to eat beyond the point of satiety may influence the likelihood of overeating as an adult (Brink et al., 1999). Later research reported that adults who remember their parents using food-based threats or bribes to control their behaviour, engage in higher levels of binge-eating and dietary restraint (Puhl &

Schwartz, 2003). Galloway and Colleagues (2010) collected data from a student sample on their recollections of being provided food as a child. They found that recollections of being restricted were positively associated with student BMI and emotional eating (Galloway et al., 2010). In another study, reported experience of food restriction and being provided food for emotion regulation as a child was positively associated with later adult emotional eating (Tan et al., 2016b). Experience of food restriction has also been found to positively predict disordered eating behaviours in adulthood (Lev-Ari & Zohar, 2013). Recollections of being pressured to eat as a child have been found to predict less intuitive eating (responding to cues of hunger and satiety), and high levels of disordered eating behaviours among young adults (Ellis et al., 2016, Tan et al., 2016b). Overall, there is compelling evidence to suggest a lasting relationship between childhood experiences of being provided food as a child and later eating behaviours. Although adult reports are based on recalled experience, Roberts and Colleagues (2020) provide support for the use of retrospective reporting of childhood experiences of being provided food as a child.

In summary, experiences of being provided food as a child appears to influence adult eating behaviours. Additionally, maternal eating behaviours are linked to parents' use of FPPs. To the knowledge of the authors, there is only one study to date that has examined parents recollections of being provided food as a child, disordered attitudes towards food and eating, and FPPs (Lev-Ari et al., 2021). The study found that the experiences of being provided food as a child were positively associated with use of the same types of FPPs, and disordered attitudes towards food and eating mediated this relationship (Lev-Ari et al., 2021). However, the study's sample size is rather small (n = 174). In addition, it appears to examine only three coercive control FPPs (food restriction, pressure, and monitoring) from the Child Feeding Questionnaire (Birch et al., 2001). It is also worth examining other coercive control FPPs such as food-based threats and bribes, the use of food to control negative emotions and iterations of food restriction (Vaughn et al., 2016). Research has yet to investigate whether coercive FPPs can be explained by

parents' experiences of being provided food as a child and current eating behaviours.

Given the evidence to date, it seems plausible that parents' experiences of being provided food as a child and their existing eating behaviours might predict FPP use. Therefore, the aim of the study was to explore whether the way mothers were provided food as a child affects their adult eating behaviours and use of coercive FPPs with their own child. It was predicted that; (1) there would be an association between mothers' experiences of being provided food as a child with their current use of FPPs; (2) an association between mothers' reports of being provided food as a child and their current eating behaviours; (3) mothers' experiences of being provided food as a child, and their existing eating behaviours would predict their current use FPPs. Exploratory mediation analyses were conducted where appropriate to explore whether maternal eating behaviours potentially mediated relationships between mothers' experiences of being provided food as a child and their current use of FPPs.

3.3 Methods
3.3.1 Participants and procedure

Mothers of children aged between 2 and 16 years were invited to participate. Mothers are the focus in the current study as it has been previously reported that mothers tend to engage more than fathers with overall house and family issues, including feeding their children (Davison et al., 2020, Pratt et al., 2019). Using convenience sampling, mothers were recruited via social media platforms, a crowdsourcing platform (Prolific Academic), primary/secondary schools, community services (e.g., rhyme time sessions) across the Midlands, UK, and in-person at a Weight Management Service from a hospital in the West Midlands, UK. Mothers completed a series of demographic questions and self-reported questionnaires online or on paper. The study conformed to the Declaration of Helsinki and was approved by the University of Warwick's Biomedical and Scientific Research Ethics Committee (BSREC 100/18-19)

and the NHS Health Research Authority Research Ethics Committee (17/WM/0360).

3.3.2 Measures
3.3.2.1 Demographic questionnaire

Maternal characteristics collected included gender, age, height, weight, ethnicity, and highest level of education, and age of youngest child.

3.3.2.2 Retrospective comprehensive feeding practices questionnaire (rCFPQ (Appendix C); Musher-Eizenman & Holub (2007))

For the current study, the CFPQ (Musher-Eizenman & Holub, 2007) was modified to capture mother's childhood experiences of FPPs (Retrospective Comprehensive Feeding Practice Questionnaire (rCFPQ; Appendix C)). Several studies have used this modified approach with community samples and have demonstrated similar levels of reliability (e.g., Ellis et al., 2018, Farrow, 2014, Goldstein et al., 2017, Małachowska & Jeżewska-Zychowicz, 2021, Roberts et al., 2020). As per the original CFPQ, the rCFPQ is a 49-item self-report measure of how a parent remembers to have been provided food as a child. The rCFPQ contains the same twelve subscales as the original CFPQ: child control, emotion regulation, encourage balance and variety, environment, food as reward, involvement, modelling, monitoring, pressure, food restriction for health reasons, food restriction for weight control, and teaching about nutrition. The wording of items in this version of the CFPQ is modified to reflect experience. For example, "My parent restricted the food that I ate that might have made me fat;" "Did your parent give you something to eat or drink if you were upset even if s/he thought you were not hungry?." Higher mean scores in each subscale indicate greater use of the FPP. Cronbach's alphas demonstrated good reliability in the current sample ($\alpha = 0.83$ to $\alpha = 0.96$). The teaching about nutrition subscale demonstrated weaker reliability ($\alpha = 0.57$), similar to previous research (Haycraft et al., 2017, Musher-Eizenman et al., 2009, Tan et al., 2016b), and so was excluded from the analyses.

3.3.2.3 Dutch Eating Behaviour Questionnaire (DEBQ (Appendix D); van Strien et al. (1986)

The DEBQ is a 33-item self-report questionnaire assessing emotional, external, and restrained eating behaviours. For example, "Do you have a desire to eat when you are feeling lonely?," "If food smells and looks good, do you eat more than usual?", "Do you try to eat less at mealtimes that you would like to eat?". Higher mean scores in each subscale indicate greater frequency of the eating behaviour. Cronbach's alphas demonstrated good reliability in the current sample ($\alpha = 0.89$ to $\alpha = 0.96$). This measure has been used extensively with community samples with adequate reliability and validity (e.g., Damiano et al., 2016, Zarychta et al., 2019).

3.3.2.4 Comprehensive feeding practices questionnaire (CFPQ (Appendix B; Musher-Eizenman & Holub (2007))

The CFPQ is a 49-item self-report measure of a variety of FPPs. Data on five of its subscales that were related to coercive FPPs were used in the current study (emotion regulation, food as reward, pressure, food restriction for health reasons and food restriction for weight). For example, "I restrict the food my child eats that might make him/her fat?," "Do you give this child something to eat or drink if s/he is bored even if you think s/he is not hungry? A higher mean subscale score indicates greater use of the FPP. Mothers were asked to base their responses on their youngest child (aged between 2 and 16) (e.g., Vollmer et al., 2015). All included subscales demonstrated good reliability in the current sample ($\alpha = 0.75$ to $\alpha = 0.85$). The measure and its subscales have been used extensively with community samples and with parents of younger and older children with adequate reliability and validity (e.g., Haycraft et al., 2017, Holley et al., 2020, Jansen et al., 2021).

3.3.3 Power calculation

G*Power analysis software was used to determine the sample size (Faul et al., 2009). To detect a correlation coefficient of $r = 0.3$ with 80% power ($\alpha = 0.05$), N = 84 participants were required. For multiple regression analyses with N = 15 predictor variables, to detect a $f^2 = 0.15$ with 80% power ($\alpha = 0.05$), N = 139 participants were required.

3.3.4 Data analysis

Analyses were conducted using IBM SPSS software (v25) (IBM Corp., 2017). Kolmogorov-Smirnov tests indicated that data were not normally distributed, therefore non-parametric tests were employed where applicable. Missing questionnaire data were not included in the specific analyses when missing but included where data allowed (pairwise deletions). BMI was calculated with the formula: weight (kilograms)/height (meters)^2. Two-tailed Spearman's correlations were conducted to investigate associations between FPPs and maternal demographic variables, mothers' experiences of being provided food as a child (rCFPQ) and their existing eating behaviours (DEBQ). Preliminary two-tailed Spearman's correlations were conducted to assess whether maternal and child age were related to FPP use, since these have been previously identified as covariates of FPP use (Gonçalves et al., 2017). No subgroup analyses based on remaining demographic characteristics (e.g., ethnicity) were performed due to small sample sizes.

Maternal age was significantly correlated with use of emotion regulation ($r_s = -0.11, p < 0.01$), food as reward ($r_s = -0.21, p < 0.01$), pressure to eat ($r_s = -0.12, p < 0.01$) and food restriction for weight control ($r_s = 0.10, p < 0.01$). Child age was significantly correlated with maternal use of emotion regulation ($r_s = -0.16, p < 0.01$), food as reward ($r_s = -0.15, p < 0.01$), and food restriction for weight control ($r_s = 0.19, p < 0.01$). Partial correlations were subsequently conducted between rCFPQ, DEBQ, and CFPQ controlling for maternal and child age due to associations. All study variables were then entered into standard multiple regression to identify a model that could predict maternal use of each coercive FPP and understand the unique contribution that mothers' reports of being provided food as a child, and their existing eating behaviours had in the prediction of coercive FPPs. Multiplicity was controlled for using Benjamini and Hochberg's False Discovery Rate (FDR) methods, assuming an FDR of 5% (Benjamini & Hochberg, 1995). All p-values reported represent adjusted p-values.

Mediation is a statistical method to examine whether a relationship between a predictor variable and outcome variable can be explained by a third variable (the mediator) (Hayes, 2017). Exploratory mediation analysis was conducted only when maternal eating behaviours (mediators; DEBQ (M)) were significantly associated with the antecedent variable (mothers' reports of being provided food as a child; rCFPQ (X)), and the outcome variable (food parenting practice; CFPQ (Y)), controlling for the independent variable. Figure 5 presents an example conceptual model using the study variables.

Figure 5: Example conceptual mediation model using the study variables

Path a refers to the association between the rCFPQ subscale and potential mediator(s) (DEBQ subscale). Path b refers to the association between the potential mediators (DEBQ subscale) and the CFPQ subscale. Path c refers to the total effect of the rCFPQ subscale on the CFPQ subscale. Path c' refers to the direct effect of the rCFPQ subscale on the CFPQ subscale while keeping the mediator(s) constant. The indirect effect (ab) refers the effect of the rCFPQ subscale on the CFPQ subscale through the DEBQ subscale. Full mediation is indicated when X no longer affects Y after M has been controlled for (i.e., the c' path is non-significant). Partial mediation is indicated where the strength of the relationship between X and Y is less than that of the c pathway but is still significant in the presence of M (i.e., the c' path is significant).

Maternal age, maternal BMI, and child age were included as covariates. Mediation models (model 4) were tested using the PROCESS macro (Hayes, 2017). Multiple mediators were tested simultaneously if more than one maternal eating behaviour met the criteria for mediation analysis (Preacher & Hayes, 2008). All models ran 10,000 bootstrap samples and 95% bias-corrected confidence interval based on 10,000 bootstrap samples are reported. For indirect effects, 95% bias-corrected confidence intervals were calculated using 10,000 repetitions since this method does not require the assumption of normality, in addition to higher power while controlling for Type one errors (MacKinnon et al., 2004, MacKinnon et al., 2002). Indirect pathways were determined to be significant by a 95% bias-corrected bootstrapped interval (based on 10,000 bootstrapped samples) that did not contain zero (Preacher & Hayes, 2004, Preacher & Hayes, 2008). Where applicable, multiplicity was controlled for using FDR-adjusted confidence intervals (CI) using the Benjamini and Yekutieli (2005) method.

3.4 Results

3.4.1 Descriptive statistics

Mothers (N = 907; female, n = 905; not reported, n = 2) were on average 37 years old (range 21–61; $SD = 7.7$), with a mean child age of 5 ½ (range 2–11; $SD = 4.1$). Mothers were predominantly of White ethnicity (91%), educated to degree level (60.7%), and had a mean BMI of 27.6 (range 18.6–64.9; $SD = 6.7$; healthy weight (BMI 18.6–24.9), 43%; overweight/obese (BMI >25.0), 57%.

3.4.2 Mothers' perceptions of being provided food as a child and mothers' eating behaviours

Several FPPs experienced as a child were associated with mothers' existing eating behaviours (Table 6). First, mothers' experiences of rCFPQ control and rCFPQ food restriction for health reasons as a child were significantly (positively) associated with DEBQ emotional and external eating. Second, mothers' experiences of rCFPQ emotion regulation, rCFPQ food as reward, rCFPQ pressure to eat and rCFPQ food restriction for weight control as a

child were significantly (positively) associated with DEBQ restrained, emotional, and external eating behaviours. Third, mothers' experiences of rCFPQ environment, and rCFPQ food as reward as a child were significantly (negatively) associated with DEBQ restrained, emotional, and external eating. Forth, mothers' experience of rCFPQ involvement as a child was significantly (negatively) associated with DEBQ emotional and external eating. Fifth, mothers' experience of rCFPQ modelling as a child was significantly associated (negatively) with DEBQ emotional eating. Finally, mothers' experience of rCFPQ encouragement of balance and variety as a child was significantly associated (negatively) with DEBQ restrained and emotional eating.

Table 6: Associations (two-tailed) between mothers' recollections of being provided food as a child (rCFPQ), and mothers' eating behaviours (DEBQ).

Variables	DEBQ					
	Restrained eating		Emotional eating		External eating	
	rho	*p*	*rho*	*p*	*rho*	*p*
rCFPQ						
Child control	-.01	.792	.08	**.030**	.11	**.002**
Emotion regulation	.14	**<.001**	.35	**<.001**	.25	**<.001**
Encourage balance & variety	-.09	**.012**	-.10	**.004**	-.07	.058
Environment	-.08	**.024**	-.16	**<.001**	-.14	**<.001**
Food as reward	.12	**.001**	.27	**<.001**	.24	**<.001**
Involvement	-.06	.069	-.12	**<.001**	-.11	**.003**
Modelling	-.07	.047	-.07	**.045**	-.04	.286
Monitoring	.02	.673	-.03	.330	-.03	.387

Pressure to eat	.09	**.014**	.10	**.005**	.12	**<.001**
Restriction for health reasons	.03	.413	.17	**<.001**	.11	**.002**
Restriction for weight control	.17	**<.001**	.18	**<.001**	.10	**.002**

Cases excluded pairwise; N ranges from 811 to 885 due to missing data; Bold indicates significance after applying Benjamini-Hochberg FDR procedures.

3.4.3 Mothers' perceptions of being provided food as a child and use of coercive food parenting practices

Mothers' use of CFPQ emotion regulation was significantly associated (positively) with rCFPQ child control, rCFPQ emotion regulation, rCFPQ food as reward, and rCFPQ food restriction for weight control, and significantly associated (negatively) with rCFPQ encourage balance and variety and rCFPQ environment (Table 7). Mothers' use of CFPQ food as reward was significantly associated (positively) with rCFPQ emotion regulation, rCFPQ food as a reward, and rCFPQ pressure to eat, and significantly associated (negatively) with rCFPQ environment. Mothers' use of CFPQ pressure to eat was significantly associated (positively) with rCFPQ food as a reward and rCFPQ pressure to eat. Mothers' use of CFPQ food restriction for health reasons was significantly associated (positively) with maternal BMI, rCFPQ food as a reward, rCFPQ monitoring, rCFPQ pressure to eat, rCFPQ food restriction for health and rCFPQ food restriction for weight and significantly associated (negatively) with rCFPQ involvement. Mothers' use of CFPQ food restriction for weight was significantly associated (positively) with maternal BMI, rCFPQ child control, rCFPQ emotion regulation, rCFPQ food as a reward, rCFPQ food restriction for weight and significantly associated (negatively) with rCFPQ encourage balance and variety and rCFPQ environment.

Table 7: Associations (two-tailed) between mothers' food parenting practices (CFPQ), mothers' recollections of being provided food as a child (rCFPQ), and mothers' eating behaviours (DEBQ).

Variables	CFPQ									
	Emotion regulation[a]		Food as reward[a]		Pressure to eat[b]		Restriction for health reasons		Restriction for weight control[a]	
	rho	p	rho	p	rho	p	rho	p	rho	p
Maternal BMI	.00	.919	.03	.378	-.06	.071	.07	**.031**	.09	**.008**
rCFPQ										
Child control	.14	**<.001**	.06	.100	.06	.108	-.04	.228	.15	**<.001**
Emotion regulation	.33	**<.001**	.15	**<.001**	.07	.056	.04	.251	.17	**<.001**
Encourage balance and variety	-.08	**.017**	-.07	.053	.02	.661	-.04	.217	-.08	**.018**
Environment	-.09	**.009**	-.11	**.002**	-.06	.095	-.06	.069	-.13	**<.001**
Food as reward	.17	**.001**	.30	**.001**	.15	**<.001**	.10	**.003**	.14	**<.001**
Involvement	-.02	.517	-.03	.452	.04	.272	-.10	**.004**	-.02	.677
Modelling	.00	.964	-.03	.377	.02	.517	-.04	.275	-.05	.128
Monitoring	-.01	.690	-.01	.742	.03	.437	.08	**.025**	-.04	.228

Pressure to eat	.04	.213	.13	**<.001**	.17	**<.001**	.09	**.014**	.03	.394
Restriction for health reasons	.04	.248	.02	.570	.03	.419	.15	**<.001**	.06	.093
Restriction for weight control	.09	**.016**	.01	.828	-.08	.020	.08	**.027**	.20	**<.001**
DEBQ										
Restraint	.14	**<.001**	.13	**<.001**	.05	.144	.18	**<.001**	.24	**<.001**
Emotional	.27	**<.001**	.12	**<.001**	.03	.363	.13	**<.001**	.12	**<.001**
External	.26	**<.001**	.16	**<.001**	.07	.052	.18	**<.001**	.10	**.002**

Cases excluded pairwise; N ranges from 810 – 907 due to missing data; [a]Partial correlation controlling for maternal and child age; [b]Partial correlation controlling for maternal age. Bold indicates significance after applying Benjamini-Hochberg FDR procedures.

3.4.4 Investigating relationships between mothers' eating behaviours and use of coercive food parenting practices

Apart from the use of pressure to eat, mothers' eating behaviours were significantly associated with mothers' use of coercive control FPPs (Table 7). Mothers' use of CFPQ emotion regulation, CFPQ food as a reward, CFPQ food restriction for health reasons, and CFPQ food restriction for weight control with their child were significantly (positively) associated with mothers' restrained, emotional, and external eating (DEBQ) behaviours.

3.4.5 Predicting mothers' use of coercive food parenting practices
3.4.5.1 Emotion regulation

The regression model significantly predicted CFPQ emotion regulation score and was a good fit for the data ($F(17, 792) = 10.875$, $p < .001$), accounting for 17.2% of the variance in CFPQ emotion regulation. This was driven by experiencing more rCFPQ emotion regulation ($\beta = 0.266$, $p < .001$) and rCFPQ modelling ($\beta = 0.145$, $p = .034$) as a child, less rCFPQ encouragement of balance and variety as a child ($\beta = -0.139$, $p = .034$), increased DEBQ external eating ($\beta = 0.141$, $p < .001$), and lower child age ($\beta = -0.123$, $p = .034$). Lower child age was significantly associated with higher maternal use CFPQ emotion regulation (Table 8).

3.4.5.2 Food as a reward

The regression model significantly predicted CFPQ food as reward score and was a good fit for the data ($F(17, 792) = 8.811$, $p < .001$), accounting for 14.1% of the variance in CFPQ food as reward. This was driven by experiencing more rCFPQ food as a reward a child ($\beta = 0.273$, $p < .001$) (Table 8).

3.4.5.3 Pressure to eat

The regression model significantly predicted CFPQ pressure to eat score and was a good fit for the data ($F(17, 792) = 4.706$, $p < .001$), accounting for 7.2% of the variance in CFPQ pressure to eat. This was driven by more experience of more rCFPQ pressure to eat as a child ($\beta = 0.164$, $p < .001$),

and less rCFPQ food restriction for weight control as a child
($\beta = -0.135$, $p = .008$) (Table 8).

Table 8: Regression models reporting unstandardized coefficients (B), standard errors (SE), and standardised coefficients (β) for CFPQ emotion regulation, CFPQ food as reward, and CFPQ pressure to eat.

Variables	CFPQ emotion regulation			CFPQ food as reward			CFPQ pressure to eat		
	B	SE	β	B	SE	β	B	SE	β
Adjusted R^2			**.172**			**.141**			**.072**
rCFPQ									
Child control	.007	.020	.014	.012	.034	.015	.083	.043	.089
Emotion regulation	.191	.031	**.266**	.005	.054	.004	-.045	.067	-.031
Encourage balance and variety	-.060	.023	**-.139**	-.053	.040	-.072	.014	.050	.016
Environment	.018	.026	.038	.021	.045	.025	-.082	.055	-.082
Food as reward	.013	.023	.022	.264	.040	**.273**	.112	.049	.098
Involvement	-.005	.021	-.009	.022	.037	.023	.062	.045	.056
Modelling	.055	.021	**.145**	.050	.036	.078	.040	.045	.052
Monitoring	.006	.017	.015	.002	.030	.003	.043	.037	.052
Pressure to eat	-.004	.018	-.009	.034	.031	.042	.158	.038	**.164**
Restriction for health	.002	.018	.004	-.016	.032	-.024	.041	.039	.050

Restriction for weight	.007	.010	.030	-.017	.017	-.039	-.068	.021	**-.135**
DEBQ								
Restraint	.009	.008	.039	.030	.014	.076	.022	.017	.048
Emotional	.015	.007	.095	-.006	.012	-.023	-.004	.014	-.012
External	.042	.012	**.141**	.050	.021	.098	.025	.025	.042
Demographic								
Maternal age	.015	.012	.057	-.046	.021	-.099	-.040	.026	-.073
Child age	-.062	.023	**-.123**	-.105	.039	-.122	-.036	.048	-.035
Maternal BMI	-.023	.011	-.073	.002	.018	.004	-.040	.023	-.064

Bold indicates significance after applying Benjamini-Hochberg FDR procedures.

3.4.5.4 Food restriction for health reasons

The regression model significantly predicted CFPQ food restriction for health reasons score and was a good fit for the data ($F(17, 792) = 3.866$, $p < .001$), accounting for 5.7% of the variance in CFPQ food restriction for health reasons. This was driven by more experience of rCFPQ food restriction for health reasons as a child ($\beta = 0.159$, $p = .008$), and increased DEBQ restrained ($\beta = 0.135$, $p < .001$) and external eating behaviours ($\beta = 0.118$, $p = .034$) (Table 9).

3.4.5.5 Food restriction for weight control

The regression model significantly predicted CFPQ food restriction for weight control score and was a good fit for the data ($F(17, 792) = 8.011$, $p < .001$), accounting for 12.8% of the variance of CFPQ food restriction for weight control. This was driven by mothers' experiences of more rCFPQ child control ($\beta = 0.119$, $p = .030$) and rCFPQ food restriction for weight control as a child ($\beta = 0.190$, $p < .001$), increased DEBQ restrained eating behaviours ($\beta = 0.189$, $p < .001$) and child age ($\beta = 0.186$, $p < .001$). Higher child age was significantly associated with higher maternal use of CFPQ food restriction for weight control (Table 9).

Table 9: Regression models reporting unstandardized coefficients (B), standard errors (SE), and standardised coefficients (β) for CFPQ restriction for health reasons and CFPQ restriction for weight control.

Variables	CFPQ restriction for health reasons			CFPQ restriction for weight control		
	B	SE	β	B	SE	β
Adjusted R^2			**.057**			**.128**
rCFPQ						
Child control	.018	.047	.018	.169	.063	**.119**
Emotion regulation	-.043	.074	-.026	.043	.098	.019
Encourage balance and variety	-.048	.056	-.049	-.055	.074	-.041
Environment	-.079	.061	-.072	-.103	.081	-.068
Food as reward	-.003	.055	-.002	.061	.073	.035
Involvement	-.062	.051	-.051	.026	.067	.016
Modelling	.006	.050	.008	.033	.066	.029

Monitoring	.073	.041	.080	-.037	.055	-.030
Pressure to eat	.033	.042	.031	.026	.056	.018
Restriction for health	.143	.044	**.159**	.009	.058	.007
Restriction for weight	-.040	.024	-.071	.146	.031	**.190**
DEBQ						
Restraint	.070	.019	**.135**	.135	.025	**.189**
Emotional	-.008	.016	-.023	-.008	.021	-.017
External	.079	.028	**.118**	.021	.037	.023
Demographic						
Maternal age	-.007	.029	-.012	-.006	.038	-.008
Child age	-.006	.054	-.005	.288	.071	**.186**
Maternal BMI	.008	.025	.011	-.009	.033	-.009

Bold indicates significance after applying Benjamini-Hochberg FDR procedure

3.4.6 The potential mediating role of maternal eating behaviours in the relationship between rCFPQ score and CFPQ score
3.4.6.1 Emotion regulation

Results from the simple mediation analysis show a significant positive association between mothers' experience of rCFPQ emotion regulation as a child and DEBQ external eating behaviours ($a = 0.56$, $p < 0.001$), and a significant positive association between mothers' DEBQ external eating behaviours and the use of CFPQ emotion regulation with their child ($b = 0.07$, $p < 0.001$). There was a significant direct relationship between mothers' experience of emotion regulation as a child (rCFPQ emotion regulation), and the use of emotion regulation with their child (CFPQ emotion regulation) when no mediators were included in the model (total effects, $c = 0.25$, $p < 0.001$). This remained the same case when DEBQ external eating was included in the model (direct effects, $c' = 0.21$, $p < 0.001$), indicating partial mediation. A significant indirect effect through mothers' external eating ($b = 0.036$, 95% BCa CI_{FDR} [0.025, 0.047]) (Figure 6).

Figure 6: Direct and indirect pathways from mothers' experience of emotion regulation as a child to use of CFPQ emotion regulation with their own child.
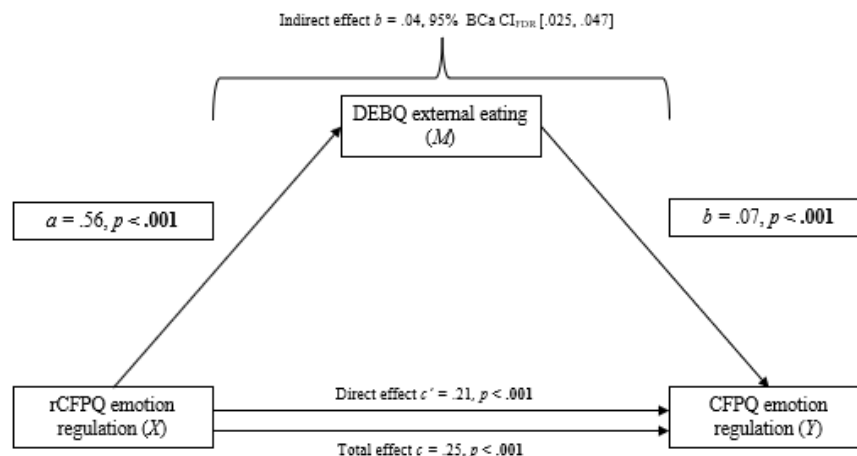
Second, there was no significant association between mothers' experience of rCFPQ encouragement of balance and variety as a child and DEBQ external eating behaviours ($a = -0.08$, $p = 0.099$), however there was a significant

positive association between mothers' DEBQ external eating behaviours and the use of CFPQ emotion regulation with their child ($b = 0.09$, $p < 0.001$). There was no significant direct relationship between experience of encouragement of balance and variety as a child (rCFPQ encourage balance and variety), and the use of emotion regulation with their child (CFPQ emotion regulation) when no mediators were included in the model (total effects, $c = -0.04$, $p = 0.063$). When mediators were included in the model, this relationship was significant (direct effect, $c' = -0.03$, $p = 0.025$), indicating partial mediation and a significant indirect effect ran through mothers' external eating ($b = -0.007$, 95% BCa CI$_{FDR}$ [-0.014, -0.001]) (Figure 7).

Figure 7: Direct and indirect pathways from mothers' experience of encouragement of balance and variety as a child and use of CFPQ emotion regulation with their own child.
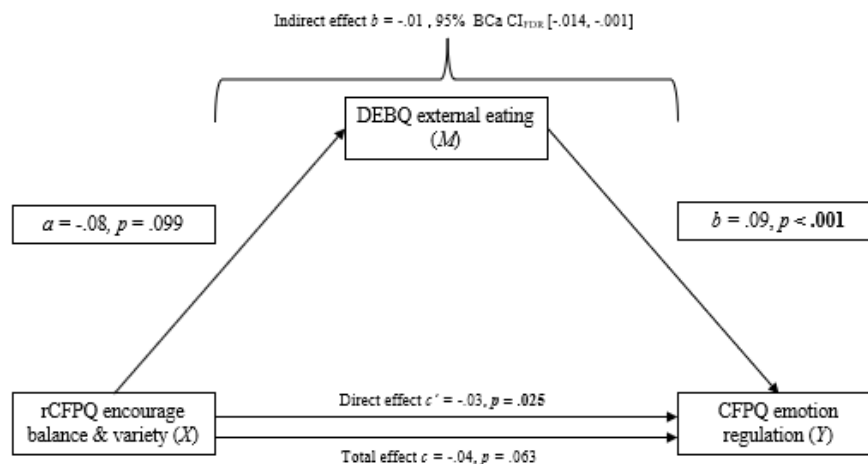
Third, there was no significant association between mothers' experience of rCFPQ modelling as a child and DEBQ external eating behaviours ($a = -0.03$, $p = 0.534$), however there was a significant positive association between mothers' DEBQ external eating behaviours and the use of CFPQ emotion regulation with their child ($b = 0.09$, $p < 0.001$). There was no significant direct relationship between mothers' experience of modelling as a child (rCFPQ modelling), and the use of emotion regulation with their child (CFPQ emotion regulation) when no mediators were included in the model

(total effects, $c = 0.002$, $p = 0.878$). This remained the same case when DEBQ external eating was included in the model (direct effects, $c' = 0.004$, $p = 0.735$), and no significant indirect effect through mothers' external eating ($b = -0.002$, 95% BCa CI [-0.010, 0.005] (Figure 8).

Figure 8: Direct and indirect pathways from mothers' experience of modelling as a child and use of CFPQ emotion regulation with their own child.

Indirect effect $b = -.002$ 95% BCa CI [-.010, .005]

DEBQ external eating (M)

$a = -.03$, $p = .534$

$b = .09$, $p < .001$

rCFPQ modelling (X)

Direct effect $c' = .004$, $p = .735$

CFPQ emotion regulation (Y)

Total effect $c = .002$, $p = .878$
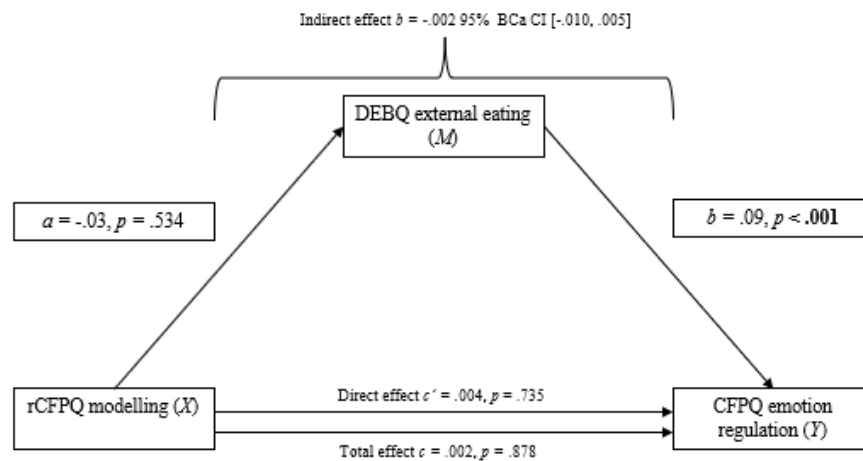
3.4.6.2 Food restriction for health reasons

Parallel mediation analysis showed that there was no significant association between mothers' experience of rCFPQ food restriction for health as a child and DEBQ restrained eating behaviours ($a_1 = 0.07$, $p = 0.243$). There was a significant positive association between mothers' experience of rCFPQ food restriction for health as a child and DEBQ external eating behaviours ($a_2 = 0.10$, $p = 0.036$). There were significant positive associations between mothers' DEBQ restrained and external eating behaviours and the use of CFPQ food restriction for health with their child ($b_1 = 0.06$, $p < 0.001$; $b_2 = 0.08$, $p < 0.001$). There was a significant direct relationship between mothers' experience of being restricted food as a child for health (rCFPQ food restriction for health reasons), and the use of food restriction for health with their child (CFPQ food restriction for health) when no mediators were included in the model (total effects, $c = 0.13$, $p < 0.001$). This remained the same case when mediators were included (direct

effects, $c' = 0.12$, $p < 0.001$), indicating partial mediation. A significant indirect effect ran through mothers' external eating ($b = 0.012$, 95% BCa CI$_{FDR}$ [0.005, 0.020]), but not mothers' restrained eating ($b = 0.005$, 95% BCa CI [−0.004, 0.015]) (Figure 9).

Figure 9: Direct and indirect pathways from mothers' experience of food restriction for health as a child and use of CFPQ restriction for health with their own child.
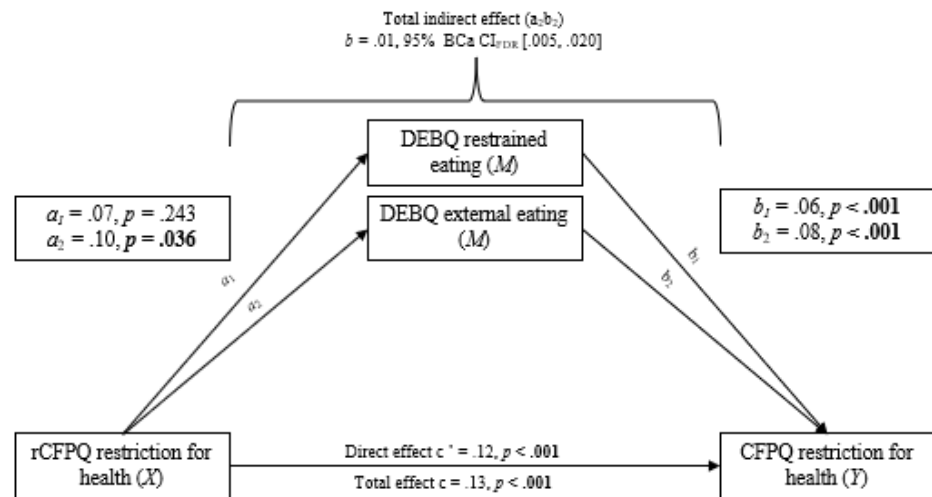
3.4.6.3 Food restriction for weight control

Results from a simple mediation analysis showed that there was no significant association between mothers' experience of rCFPQ child control and DEBQ restrained eating behaviours ($a = 0.04$, $p = 0.593$), however there was a significant positive association between mothers' DEBQ restrained eating behaviours and the use of CFPQ food restriction for weight control with their child ($b = 0.18$, $p < 0.001$). A significant direct relationship between mothers' experience of control as a child (rCFPQ child control), and the use of food restriction for weight control with their child (CFPQ food restriction for weight control) when no mediators were included in the model (total effects, $c = 0.20$, $p < 0.001$). This remained the same case when DEBQ external eating was included in the model (direct effects, $c' = 0.20$, $p < 0.001$), indicating partial mediation however the indirect effect running through mothers' restrained eating was not significant ($b = 0.007$, 95% BCa CI [−0.019, 0.034]) (Figure 10).

Figure 10: Direct and indirect pathways from mothers' experience of control as a child and use of CFPQ food restriction for weight control with their own child.

Second, there was a significant positive association between mothers' experience of rCFPQ food restriction for weight control as a child and DEBQ restrained eating behaviours ($a = 0.17$, $p < 0.001$), and there was a significant positive association between mothers' DEBQ restrained eating behaviours and the use of CFPQ food restriction for weight control with their own child ($b = 0.16$, $p < 0.001$). There was a significant direct relationship between mothers' experience of food restriction for weight control as a child (rCFPQ food restriction for weight control), and the use of food restriction for weight control with their child (CFPQ food restriction for weight control) when no mediators were included in the model (total effects, $c = 0.15$, $p < 0.001$). This remained the same case when DEBQ restrained eating was included in the model (direct effects, $c' = 0.12$, $p < 0.001$), indicating partial mediation and a significant indirect effect through mothers' restrained eating ($b = 0.027$, 95% BCa CI$_{FDR}$ [0.017, 0.037]) (Figure 11).
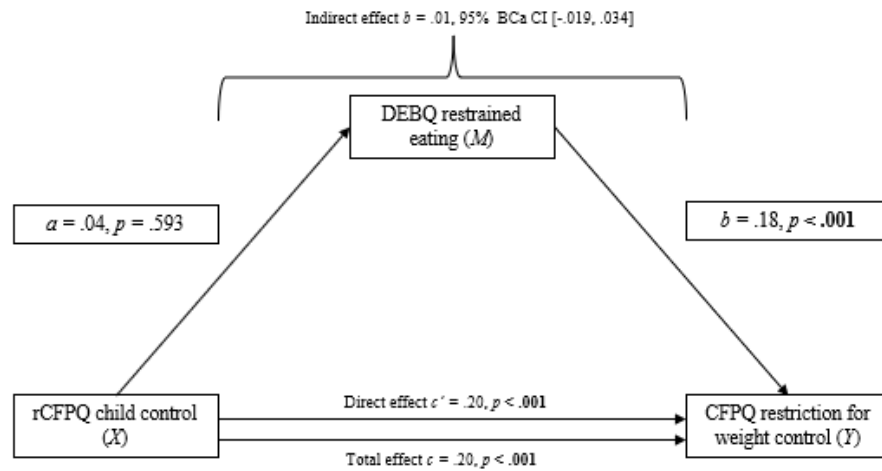
Figure 11: Direct and indirect pathways from mothers' experience of food restriction for weight control as a child and use of CFPQ food restriction for weight control with their own child.

Indirect effect $b = .03$, 95% BCa CI$_{FDR}$ [.017, .037]

DEBQ restrained eating (M)

$a = .17, p < .001$

$b = .16, p < .001$

rCFPQ restriction for weight control (X)

Direct effect $c' = .12, p < .001$

Total effect $c = .15, p < .001$

CFPQ restriction for weight control (Y)
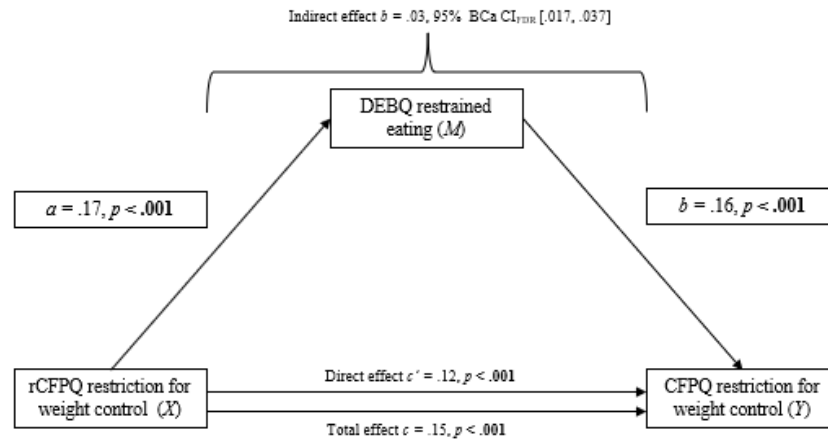
3.5 Discussion

The aim of the study was to understand whether the way mothers were provided food as a child affected their adult eating behaviours and use of coercive FPPs with their own child. It also sought to understand whether indirect effects ran through maternal eating behaviours between how mothers were provided food as a child and use of coercive FPPs with their own child. The results indicate that mothers' experiences as a child were positively associated with their current eating behaviours, and that mothers' experiences as a child and their existing eating behaviours predicted use of coercive FPPs with their own child.

Specifically, maternal use of food to control their child's emotions was predicted by mothers' experiences of higher levels of emotion regulation and modelling as a child alongside higher levels of external eating behaviours. Other research using the DEBQ similarly report that higher levels of maternal external eating are positively associated with use of emotion regulation FPPs (Wardle et al., 2002a). The current finding is of particular importance to target within interventions as emotional eating is likely a learned behaviour (with only a small percentage accounted for through genetic transmission) (Herle et al., 2018a, Steinsbekk et al., 2018), and therefore potentially modifiable via FPP intervention.

Maternal use of CFPQ food as reward was predicted by mothers' experiences of being provided food as a reward as a child. This result suggests that mothers have learned this FPP from the ways in which they were rewarded as child. Further research is needed to understand this finding as the current interpretation is speculative. However the long-term impact of such a finding is concerning as adults report increased engagement in binge-eating and dietary restraint with experience of their parent's use of food as a reward as a child (Puhl & Schwartz, 2003).

Maternal use of pressure to eat was predicted by mothers' experiences of higher levels of pressure to eat, and less food restriction for weight control as a child. No maternal eating behaviours were associated with CFPQ pressure to eat. This finding is in contrast to previous research reporting that maternal external and restrained eating are both positively associated with CFPQ pressure to eat (Haycraft, 2020). However, although Tylka and Colleagues (2013) administered the Intuitive Eating Scale to mothers in their study, they also report that no maternal behaviours were related to pressuring their child to eat, supporting the findings identified.

Maternal use of food restriction for health reasons was predicted by mothers' experiences of food restriction for health reasons as a child, and their current restrained, and external eating behaviours. Finally, maternal use of CFPQ food restriction for weight control, was predicted by mothers' experiences of having more control and increased food restriction for weight control as a child, higher levels of restrained eating behaviours, and older child age. These findings support previous research reporting that food restriction for weight is positively associated with parental restrained eating (de Lauzon-Guillain et al., 2009, Haycraft, 2020), and other research reporting that mothers who engage in higher levels of restrained eating are likely to restrict their daughters' food intake (Birch & Fisher, 2000). More recent research further reports that external and emotional eating behaviours are also positively associated with the use of CFPQ food restriction for health reasons and CFPQ food restriction for weight control (Haycraft, 2020). In addition to supporting the findings of previous research, the current results also identify restrained

eating behaviours as a significant predictor of increased use of food restriction for health reasons and weight control.

Exploratory mediation analyses revealed that relationships between mothers' childhood experiences of FPPs and use of coercive FPPs were partially mediated by mothers' eating behaviours with significant indirect effects found for mothers' external eating and restrained eating behaviours. The results indicate that mothers' who experienced more emotion regulation and food restriction for health reasons as a child were more likely to eat in response to stimuli in the environment (external eating: e.g., sight, taste, and smell). In turn, mothers engaged in the use of CFPQ emotion regulation and CFPQ food restriction for health reasons with their child. Additionally, mothers who experienced more food restriction for weight control as a child were more likely to eat less to deliberately maintain or lose weight (restrained eating). In turn, mothers engaged in the use of CFPQ food restriction for weight control with their child. Overall, the results of the mediation analyses show that maternal external and restrained eating behaviours partially account for the relationship between mothers' childhood experiences of FPPs and use of coercive FPPs.

Although the overall variance accounted for was small, the strongest unique predictors of coercive FPPs were the same FPPs mothers report to have experienced as a child (e.g., experiencing pressure to eat as a child predicted pressuring their child to eat). This supports previous research showing that parents (predominantly mothers in the sample) engage in the same FPPs with their own child that they recall having experienced as a child, such as pressure to eat (Lev-Ari et al., 2021). There is also evidence from the findings that the presence of certain eating behaviours, that are known contributors to the development of overweight and obesity (van Strien et al., 1986), predict the use of coercive FPPs. The current results show that maternal external eating significantly predicted the use of CFPQ emotion regulation; maternal restrained and external eating behaviours significantly predicted CFPQ food restriction for health reasons; and maternal restrained eating predicted CFPQ food restriction for weight. Recent findings reported by Haycraft (2020)

support the present findings on maternal eating behaviours and use of coercive FPPs. Haycraft (2020) reports positive associations between DEBQ external eating and CFPQ emotion regulation, DEBQ restrained and external eating and CFPQ food restriction for health, and DEBQ restrained eating and CFPQ food restriction for weight. Further, although not directly comparable, restrained eating has been reported to be positively associated with use of food restriction for health (de Lauzon-Guillain et al., 2009). The present findings support the notion that when mothers are concerned about their own eating, they are likely to have more involvement and control when providing food to their child. Taken together, the results of the present study highlight that mothers' experiences of being provided food as a child, predict maternal use of coercive FPPs with maternal eating behaviours partially accounting for some of these relationships (i.e., emotion regulation, food restriction for health reasons, and food restriction for weight reasons).

The current study forms an important step towards understanding the potential long-term relationship between experiences of being provided food as a child and use of FPPs. However, there are a few study limitations to consider. Owing to the cross-sectional nature of the study, the study findings are limited. It is also not possible to rule out that mothers' current eating behaviours or current use of FPPs may affect their memories of being fed as a child (i.e., certain memories/experiences may become more or less salient based on current circumstances). It is also evident that other factors contribute to the use of coercive FPPs such as concern about child weight, child eating behaviours and child BMI (Jansen et al., 2014, Shloim et al., 2015) that were not explored. The sample were mostly white and educated to university/college degree level, and therefore the results may not apply to mothers from other cultural backgrounds and of less education level. Previous research generated from a large cohort indicates that there is higher engagement in coercive FPPs among parents from ethnic minority groups compared to white ethnicity groups, and those with less than high school education compared to those with a degree (Loth et al., 2013a). Finally,

mothers were asked to self-report their height and weight which may have resulted in inaccuracies in BMI (e.g., Anthony et al., 2020).

The study is strengthened by the inclusion of subscales that capture broader coercive FPPs from the CFPQ that include the use of food to control negative emotions, the use of food as a reward and different types of food restriction. Previous research has used subscales from the Child Feeding Questionnaire that are limited to the assessment of the use of food restriction, pressure to eat, and monitoring (e.g., Haycraft & Blissett, 2012, Hazzard et al., 2020, Lev-Ari et al., 2021). The current results indicate there is a pattern of experience of FPPs in childhood on current eating behaviours, and subsequent use of FPPs. This is important as results from interventions demonstrate that FPPs are modifiable influences. For instance, the Child Feeding Guide delivers a digitally based health intervention comprising evidence-based support to aid parents' FPP use (Haycraft et al., 2020). Evaluation of the intervention shows a significant decrease in mothers' use of CFPQ pressure to eat and CFPQ food restriction for weight control (Haycraft et al., 2020). Follow-up from another parent-based intervention targeting parental eating, family eating patterns, and healthy eating, show a significant reduction in parental engagement in emotional eating behaviours, and significant improvements in structured mealtimes, the home food environment, and healthier food consumption (parents and children) (Willis et al., 2014). Finally in an intervention that focused on appetite regulation among children, when compared to the control group, mothers in the intervention group reported their child to emotionally overeat significantly less (Ruggiero et al., 2021). Mothers also reported to provide significantly more consistent meal routines, and significantly less use of pressure to eat, emotion regulation, and use of food as a reward when compared to the control group (Ruggiero et al., 2021). The best, although complex, way to approach the current study again would be via longitudinal replication of this study that follows children into parenthood to untangle the reported findings further.

3.6 Conclusion

This study presents the first known investigation into the relationship between mothers' experiences of being provided food as a child, mothers' current eating behaviours and their current use of coercive FPPs. Exploratory mediation analyses suggest that maternal eating behaviours are a potential mechanism linking mothers' experiences of being provided food as a child and use their use of coercive FPPs. Mothers (and caregivers more generally) have a pivotal role in influencing their child's intake and relationship with food. Understanding the influences that promote certain coercive FPPs are useful in clinical and community practice when working with parents and families and in the development of FPP-targeted interventions.

Chapter 4

Study 2 (chapter 3) examined relationships between mothers' own childhood experience of FPPs, their current eating behaviours and current use of coercive FPPs with their own child. It was found that mothers' experiences of FPPs as a child were positively associated with their current eating behaviours. It was also found that mothers' experiences of FPPs as a child and their use of coercive FPPs with their own child were mediated by mothers' current eating behaviours.

In addition to maternal eating behaviours, the research literature presented in the introduction indicated that maternal mental health symptoms have an influential role in their use of FPPs. Furthermore, it is known that mental health symptoms are prevalent among individuals with overweight and obesity. However, the role of food intake self-efficacy is a dimension of eating behaviour that is yet to be examined in relation to mental health symptoms or the use of FPPs. Therefore, study 3 (chapter 4) focuses on the impact of both mothers' mental health symptoms as well as their food intake self-efficacy on their use of FPPs with their child.[2]

This chapter is in preparation for publication for the *Journal of the Academy of Nutrition and Dietetics*. as: Patel, C., Shuttlewood, E., Karasouli, E. and Meyer, C. Are mental health symptoms and food intake self-efficacy related to controlling food parenting practices among mothers with overweight/obesity?

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[2] This chapter used the same data collected from participants recruited from the Weight Management Service that were included in chapter 2 (study 1) and chapter 3 (study 2).

Study 3: Are mental health symptoms and food intake self-efficacy related to controlling food parenting practices among mothers with overweight/obesity?

4.1 Abstract

The objective of this study was to examine whether maternal mental health symptoms and food intake self-efficacy are related to use of coercive food parenting practices among mothers with overweight/obesity. Mothers with overweight/obesity (N = 532) completed measures of demographics, symptoms of mental health (anxiety and depression), food intake self-efficacy, and food parenting practices. Data were analysed using correlational and multiple regression analyses. The results show that less food intake self-efficacy is associated with greater use of coercive food-parenting practices. Mothers who perceive themselves to have less confidence in their own ability to resist eating, are more likely to report engaging in increased use of food to regulate their child's emotions, use food as a reward, and pressure to eat. The study extends previous research that examines the role of maternal mental health symptoms, and the results have important implications for professionals working with mothers with regard to their eating behaviours.

4.2 Introduction

Coercive food parenting practices (FPPs) are behaviours exerted by parents to influence their child's food intake (Vaughn et al., 2016). Such FPPs include the use of food to regulate the child's emotions, the use of food-based threats and bribes (usually in exchange for good behaviour), pressure to eat, and restriction. Although children are born with an innate ability to self-regulate their intake (Fisher & Birch, 2002, Johnson & Birch, 1994), coercive FPP behaviours are typically parent-centred approaches, aiming to serve parents' goals and desires around food-related interactions (Vaughn et al., 2016). These non-responsive FPPs can impact a child's internal cues of hunger and satiety thereby contributing to a decreased ability to self-regulate food intake and development of excess weight (Birch & Davison, 2001, Clark et al., 2007, Dev et al., 2013, Savage et al., 2007). Furthermore, such food-related parenting practices are associated with potentially problematic eating behaviours in later life such as emotional eating and eating in the absence of hunger (Birch et al., 2003, Steinsbekk et al., 2018).

The reasons why parents engage in coercive FPPs is complex, however mental health symptoms are one known influential factor on their use (e.g., Haycraft & Blissett, 2012, Lindsay et al., 2017, McPhie et al., 2014). Over two-thirds of women with mental health problems are parents (Royal College of Psychiatrists, 2016), and women with overweight and obesity are significantly more likely to experience greater levels of anxiety and depression during the antenatal and postpartum period, than women with healthy weight (Molyneaux et al., 2014). Depressive symptoms among mothers have been found to predict greater use of food to regulate emotions regardless of perceived infant/toddler fussiness (Savage & Birch, 2017). A systematic review of symptoms of depression and coercive FPPs report evidence indicating a relationship between depressive symptoms and the use of food as a reward, and mixed evidence between depressive symptoms and pressure to eat, the use of food to regulate emotions, and restriction with two to eight year old children (Lindsay et al., 2017). More recently, it has been found that even mild levels of anxiety and low levels of depression are

associated with increased use of coercive control FPPs (emotion regulation, food as a reward, pressure to eat, restriction for health, and restriction for weight control) (Haycraft, 2020).

Food intake self-regulation has been described as one's ability to eat and stop eating in response to internal cues of hunger and satiety (Vohs & Baumeister, 2016). Difficulty in self-regulation in relation to food intake is one of the pathways implicated in the development of overweight and obesity (Anzman & Birch, 2009, Francis & Susman, 2009). Self-efficacy is one of the prerequisites of self-regulation (e.g., Anderson et al., 2007, Annesi & Gorjala, 2010) and is defined as one's belief in their ability to accomplish a task or succeed in specific situations (Bandura, 1982). Self-efficacy has been examined across a range of parenting-related behaviours (e.g., Albanese et al., 2019, Ambrose et al., 2020, Brown et al., 2014, Weiss et al., 2016), including FPPs (e.g., Duraccio et al., 2021, Walsh et al., 2019), and broadly shows that self-efficacy is a salient factor affecting parent- and child-outcomes. Self-efficacy for self-regulating food intake has been frequently examined in the context of obesity and weight loss interventions in several studies (e.g., Butryn et al., 2017, James et al., 2018, Kerrigan et al., 2018, Leung et al., 2018, Richman et al., 2001). However, despite evidence of a generational transmission of eating behaviours from parent to child (e.g., Lev-Ari et al., 2021), just one study to date has examined parental food intake self-efficacy and FPPs. Among an Iranian sample of mothers (N = 165), Doaei and Colleagues (2015) found that less maternal food intake self-efficacy was associated with significantly greater use of emotion regulation. However, this study has a number of limitations including the small sample size, investigation of one coercive control FPP (maternal use of emotion regulation) and requires replication. Research also indicates a bidirectional relationship between obesity and anxiety and depression (e.g., de Wit et al., 2010, Luppino et al., 2010, Rajan & Menon, 2017), and higher levels of reported anxiety and depression are linked to obesogenic eating behaviours (Emerson et al., 2017). However, research focussing on these areas with individuals with overweight/obesity remains sparse.

What is currently unknown, however, is whether the presence of mental health problems and poor self-efficacy for self-regulating food intake is related to use of coercive control FPPs. This is important as Costanzo and Woody (1985) postulate that mothers may be more controlling in areas they are highly invested in such as their own weight and food intake, and so it is possible that mothers with overweight and obesity increasingly engage in coercive control FPPs if they are highly invested in their own food intake self-regulation. Therefore, the current study aimed to build on previous research (e.g., Doaei et al., 2015, Haycraft, 2020) and examined mental health symptoms, self-efficacy for self-regulating food intake, and coercive control FPPs in a maternal sample with overweight and obesity. The following predictions were made: (1) In keeping with the findings from Haycraft (2020) it was hypothesised that increased symptoms of anxiety and depression in would be related to greater use of coercive control FPPs; (2) Also in keeping with findings reported by Doaei et al (2015), it was hypothesised that lower self-efficacy for self-regulating food intake would be related to greater use of coercive control FPPs; and (3) symptoms of anxiety and depression, and lower self-efficacy for self-regulating food intake would predict maternal use of coercive control FPPs.

4.3 Method
4.3.1 Participants and procedure

A community sample of 532 UK mothers with self-reported overweight/obesity participated. Mothers were on average 37 years old (SD = 7.83), with a mean BMI of 32.0 (SD = 6.71). Most of the sample were White (91.7%), educated to degree level (35.5%), and in full-time employment (36.7%). Mothers reported their youngest child to be male (n = 287) with an average age of 5 (SD = 4.08).

Mothers were recruited via social media platforms (e.g., Facebook, Twitter, Reddit), a crowdsourcing platform (Prolific Academic), primary and secondary schools, community services (e.g., rhyme time sessions) across the Midlands, UK, and in-person at a Weight Management Service from a

hospital in the West Midlands, UK. The study conformed to the Declaration of Helsinki and was approved by the University of Warwick's Biomedical and Scientific Research Ethics Committee (BSREC 100/18-19) and the NHS Health Research Authority Research Ethics Committee (17/WM/0360).

4.3.2 Measures
4.3.2.1 Comprehensive Feeding Practices Questionnaire (CFPQ (Appendix B); Musher-Eizenman & Holub (2007))

Maternal use of coercive FPPs was assessed using subscales from the CFPQ (Musher-Eizenman & Holub, 2007). Five of these subscales relate to coercive control FPPs: emotion regulation (e.g., do you give this child something to eat or drink if s/he is upset even if you think s/he is noy hungry?), food as a reward (e.g., I withhold sweets to my child as a reward for good behaviour), pressure to eat (e.g., if my child says, "I'm not hungry", I try to get him/her to eat anyway), restriction for health (e.g., if I did not guide or regulate my child's eating, he/she would eat too many junk foods.), and restriction for weight control (e.g., I encourage my child to eat less so he/she won't get fat). Items are responded to using a five-point scale, and scores are summed to create a total subscale score. Higher mean scores for each subscale indicate greater frequency of the use of the FPP. The measure has adequate reliability and validity (e.g., de Lauzon-Guillain et al., 2009, Melbye et al., 2011, Musher-Eizenman & Holub, 2007). The subscales used demonstrated satisfactory internal reliability in the current sample ($\alpha = .75$ to $\alpha = .88$).

4.3.2.2 Hospital Anxiety and Depression Scale (HADS (Appendix F); Zigmond & Snaith (1983))

The presence of maternal anxiety and depression symptoms was assessed using the HADS (Zigmond & Snaith, 1983). The HADS is a fourteen-item measure. Seven items assess symptoms of anxiety (e.g., worrying thoughts go through my mind), and seven items assess depression (e.g., I have lost interest in my appearance). Items are responded to using a four-point scale. Scores are summed to create a total score for anxiety and depression. Higher mean subscale scores indicate increased symptoms of anxiety or depression. The measure has adequate reliability and validity (e.g., Bjelland et al., 2002,

Haycraft, 2020). The anxiety and depression subscales demonstrated satisfactory internal reliability in the current sample ($\alpha = .79$ to $\alpha = .86$).

4.3.2.3 Weight Efficacy Lifestyle Questionnaire (WELQ (Appendix G); Clark et al. (1991))

Food intake self-efficacy was measured using the 20-item WELQ (Clark et al., 1991). The WELQ assesses one's ability to resist food under a range of circumstances (Clark et al., 1991). The WELQ comprises five subscales: negative emotions (e.g., I can resist eating when I am anxious), availability (e.g., I can resist eating when there are many different kinds of foods available), social pressure (e.g., I can resist eating even when I have to say "no" to others), physical discomfort (e.g., I can resist eating when I feel physically run down), and positive activities (e.g., I can resist eating when I am watching TV). Items are responded to using an eleven-point numeric scale (0 = not at all confident to 10 = very confident). Scores are summed to generate a subscale sore and overall score. Higher mean subscale scores indicate greater self-efficacy. The measure has adequate reliability and validity (e.g., Clark et al., 1991, Doaei et al., 2015, Richman et al., 2001) and the subscales demonstrated satisfactory internal reliability in the current sample ($\alpha = .73$ to $\alpha = .85$).

4.3.3 Power calculation

G*Power analysis software was used to determine the sample size (Faul, Erdfelder, Buchner, & Lang, 2009). To detect a correlation coefficient of r = .3 with 80% power ($\alpha = .05$), N = 84 participants were required. For multiple regression analyses with N = 10 predictor variables, to detect a $f^2 = .15$ with 80% power ($\alpha = .05$), N = 172 participants were required.

4.3.4 Data analysis

Normality tests indicated that data were not normally distributed. Data were analysed using SPSS version 27. Missing questionnaire data were not included in the specific analyses when missing but included where data allowed. Initial Spearman's Rho correlations indicated significant associations between child age and multiple CFPQ subscale scores (Table

10), therefore partial correlations controlling for child age were used. As previous research has identified an association between maternal mental health symptoms and use of FPPs, and in keeping with the directional hypothesis, one-tailed correlations were conducted to establish the relationship between anxiety and depression scores and FPP frequency, followed by a two-tailed to establish the relationship between maternal food intake self-efficacy and FPPs. To test the third hypothesis, five separate multiple regression models determined the association between the HADS, WELQ, and CFPQ coercive control subscales ((1) emotion regulation; (2) food as a reward; (3) pressure to eat; (4) restriction for health reasons; (5) restriction for weight control). No subgroup analyses based on demographic characteristics (e.g., ethnicity) were performed due to small sample sizes.

4.4 Results
4.4.2 Descriptive statistics

Mean maternal HADS scores were classified as mild (Stern, 2014, Zigmond & Snaith, 1983), and considerably lower than previous research (Blissett et al., 2007, Haycraft, 2020). Food intake self-efficacy scores were similar to previous research findings including females with overweight/obesity (Clark et al., 1991, Linde et al., 2004) (Table 10).

Table 10: Descriptive statistics for questionnaire subscales.

	Mean (SD)	Min	Max	Child age (Rho)
Hospital Anxiety and Depression Scale (HADS)				
Anxiety	1.22 (0.69)	0.00	3.00	
Depression	0.89 (0.56)	0.00	3.00	
Weight Efficacy Lifestyle Questionnaire (WELQ)				
Negative emotions	5.52 (2.75)	0.00	10.00	
Availability	4.87 (2.43)	0.00	10.00	
Social pressure	5.85 (2.56)	0.00	10.00	
Physical discomfort	6.62 (2.34)	0.00	10.00	
Positive activities	6.62 (2.19)	0.00	10.00	
Comprehensive Feeding Practices Questionnaire (CFPQ)				
Emotion regulation	1.19 (0.69)	0.00	5.00	**-.12****
Food as a reward	2.55 (1.17)	0.00	5.00	**-.15****
Pressure to eat	2.73 (1.06)	0.00	5.00	**-.11***
Restriction for health	3.66 (1.15)	0.00	5.00	.05
Restriction for weight	1.96 (0.79)	0.00	5.00	**.20****

Ns ranged from 461 – 531 due to missing data. *< .05; **< .01.

4.4.3 Maternal symptoms of anxiety and depression and use of coercive food parenting practices

There were significant, positive relationships between anxiety and the use of coercive control FPPs with exception of maternal use of restriction for health reasons (Table 11). With exception of maternal use of restriction for health reasons and restriction for weight control, there were also significant positive

relationships between symptoms of depression and use of coercive FPPs (Table 11).

Table 11: One-tailed partial correlations between symptoms of anxiety and depression and coercive control food-parenting practices (n = 458) controlling for child age.

CFPQ	HADS			
	Anxiety		Depression	
	rho	*p*	*rho*	*p*
Emotion regulation	0.094	**0.022***	0.084	**0.036***
Food as reward	0.161	**<0.001****	0.110	**0.009****
Pressure to eat	0.105	**0.012***	0.090	**0.027***
Restriction for health	0.059	0.102	0.059	0.103
Restriction for weight	0.098	**0.018***	0.068	0.071

*< .05; **< .01.

4.4.4 Food intake self-efficacy and coercive control food parenting practices

There were significant, negative relationships between maternal food intake self-efficacy and all five coercive control FPPs. Lower food intake self-efficacy was related to greater use of coercive FPPs, with larger effects on maternal use of emotion regulation (Table 12).

Table 12: Two tailed partial correlations between food intake self-efficacy and coercive control food-parenting practices (n = 528).

CFPQ	Weight Efficacy Lifestyle Questionnaire				
	Negative emotions	Availability	Social pressure	Physical discomfort	Positive activities
Emotion regulation	**-0.201****	**-0.230****	**-0.251****	**-0.242****	**-0.270****
Food as reward	**-0.162****	**-0.119****	**-0.139****	-0.081	**-0.198****
Pressure to eat	-0.084	**-0.097***	-0.073	-0.070	**-0.160****
Restriction for health	**-0.103***	**-0.164****	**-0.121****	-0.062	**-0.134****
Restriction for weight	-0.023	-0.052	**-0.090***	**-0.094***	**-0.115****

*< .05; **< .01.

4.4.4 Predicting maternal use of coercive control food parenting practices

4.4.4.1 Emotion regulation

The regression model significantly predicted emotion regulation score ($p \leq 0.001$) (Table 13). The model accounted for 8% of the variance in the dependent variable and was driven by WELQ positive activities ($\beta = -0.171$, $p = 0.014$) and child age ($\beta = -0.127$, $p = 0.036$). Specifically, lower maternal ability to self-regulate food intake while undertaking positive activities, and lower child age significantly predicted maternal use of food to regulate their child's emotions.

4.4.4.2 Food as a reward

The regression model significantly predicted food as a reward score ($p \leq 0.001$) (Table 13). The model accounted for 9% of the variance in the dependent variable and was driven by maternal anxiety ($\beta = 0.149$, $p = 0.015$), WELQ physical discomfort ($\beta = 0.197$, $p = 0.011$), WELQ negative emotions

(β = -0.149, p = 0.048), WELQ positive activities (β = -0.243, p = < 0.001), maternal age (β = -0.122, p = 0.042) and child age (β = -0.127, p = 0.047).

4.4.4.3 Pressure to eat

The regression model significantly predicted pressure to eat score ($p \leq 0.001$) (Table 13). The model accounted for 5% of the variance in the dependent variable and was driven by WELQ positive activities (β = -0.220, p = 0.002) and maternal BMI (β = -0.098, p = 0.039).

4.4.4.4 Restriction for health

The regression model did not significantly predict restriction for health sore (p = 0.096) (Table 14). The model accounted for just 1.4% of the variance in the dependent variable and no predictor reached a statistical level of significance.

4.4.4.5 Restriction for weight control

The regression model significantly predicted restriction for weight score ($p \leq$ 0.001) (Table 14). The model accounted for 6% of the variance in the dependent variable and was driven by child age (β = 0.250, $p \leq 0.001$).

Table 13: Regression models reporting unstandardized coefficients (B), standard errors (SE), and standardised coefficients (β) for CFPQ emotion regulation, CFPQ food as reward, and CFPQ pressure to eat.

Variables	CFPQ emotion regulation			CFPQ food as reward			CFPQ pressure to eat		
	B	SE	β	B	SE	β	B	SE	β
Adjusted R^2			**.076**			**.099**			**.048**
HADS									
Anxiety	.086	.062	.086	.254	.105	**.149***	.106	.097	.069
Depression	-.058	.077	-.047	-.144	.130	-.069	.020	.121	.010
WELQ									
Negative emotions	.009	.019	.038	-.063	.032	-.149	-.012	.030	-.032
Availability of food	.016	.022	.057	.056	.037	.117	.010	.035	.024
Social pressure	-.034	.020	-.128	-.034	.033	-.075	.014	.031	.033
Physical discomfort	-.030	.023	-.103	.098	.039	**.197***	.034	.036	.075
Positive activities	-.054	.022	**-.171****	-.130	.037	**-.243****	-.106	.034	**-.220****
Demographic									
Maternal age	.003	.005	.034	-.018	.009	**-.122***	-.010	.008	-.076

Child age	-.021	.010	**-.127***	-.033	.017	**-.119***	-.026	.015	-.103
Maternal BMI	-.006	.005	-.063	.004	.008	.025	-.015	.007	**-.098***

*< .05; **< .01.

Table 14: Regression models reporting unstandardized coefficients (B), standard errors (SE), and standardised coefficients (β) for CFPQ emotion regulation, CFPQ food as reward, and CFPQ pressure to eat.

Variables	CFPQ restriction for health			CFPQ restriction for weight control		
	B	SE	β	B	SE	β
Adjusted R^2			.014			**.063**
HADS						
Anxiety	.058	.108	.034	.128	.072	.110
Depression	-.069	.134	-.034	.018	.090	.012
WELQ						
Negative emotions	-.023	.033	-.054	.041	.022	.141
Availability of food	-.038	.039	-.080	.032	.026	.099
Social pressure	-.022	.034	-.049	-.034	.023	-.110
Physical discomfort	.071	.040	.144	-.032	.027	-.094
Positive activities	-.066	.038	-.125	-.037	.025	-.101
Demographic						
Maternal age	-.007	.009	-.047	-.009	.006	-.089

Child age	.009	.017	.032	.048	.012	**.250****
Maternal BMI	-.005	.008	-.026	.002	.006	.014

*< .05; **< .01.

4.5 Discussion

The study aimed to examine associations between mental health symptoms, self-efficacy for self-regulating food intake, and the use of coercive FPPs among mothers with overweight and obesity. The findings partially supported the hypotheses.

With exception to restriction for health reasons, maternal symptoms of anxiety and depression were associated with greater use of coercive FPPs and supported the first hypothesis. This finding supports previous research findings reporting that presence of anxiety and depression among mothers of two- to four-year-olds are related to use of coercive FPPs (Haycraft, 2020). These findings also help to provide further clarity on mixed research findings (e.g., Lindsay et al., 2017) by providing evidence of the use of more controlling, and dominating feeding behaviours by mothers with overweight and obesity who are experiencing severe levels of anxiety and depression. Furthermore the findings support a recently developed conceptual model indicating mother-child pathways to risk of childhood obesity that includes maternal mental health (Bergmeier et al., 2020).

Maternal self-efficacy for regulating food intake was found to be associated with greater use of coercive FPPs. Mothers reported greater use of these FPPs when they reported to have less confidence in their own ability to resist foods in several situations. The findings support the second hypothesis and supports previous research identifying that greater maternal engagement in the use of food to control negative emotions in their child when mothers are less able to resist foods in specific situations overall (Doaei et al., 2015). However previous research has examined only one coercive FPP (emotion regulation) (Doaei et al., 2015), and so it was important to understand whether similar results were found for a broader range of controlling FPPs.

The present study also sought to extend previous research to understand whether maternal mental health symptoms and self-efficacy for self-regulating food intake predicts the use of coercive FPPs. The results show that although symptoms of anxiety were associated with most of the coercive

control FPPs, anxiety was found to only be a significant predictor of the use of food as a reward. Symptoms of depression did not emerge as a significant predictor of any of the coercive control FPPs. These results partially support the third hypothesis but contrasts similar past research findings that general maternal mental health and elevated symptoms of depression predict the use of pressure to eat (Haycraft & Blissett, 2012, Goulding et al., 2014).

Several aspects of maternal self-efficacy for self-regulating food intake did however predict use of coercive FPPs and support limited research findings to date (Doaei et al., 2015). Less confidence in one's ability to resist food when undertaking positive activities predicted mothers' greater use of emotion regulation, the use of food as a reward, and pressure to eat; and less confidence in one's ability to resist food when experiencing physical discomfort predicted maternal use of food as a reward. In support of the postulation made by Costanzo & Woody (1985) that parents are more controlling in areas of parenting they are invested in, for mothers with overweight/obesity in the current study, their own preoccupations around food might transfer into use of coercive FPPs in an attempt to prevent their child developing a similar relationship with food. However, further work is needed to understand this in more detail as causality cannot be determined.

Strengths of the present study include the good sample size, an examination of a range of coercive FPPs, and investigation of broad coercive FPPs in relation to maternal self-efficacy for regulating food intake which previous research lacks. The limitations of study must also be acknowledged. These include the lack of diversity in the sample (white, educated to degree level), reliance on cross-sectional data, and other factors that influence maternal engagement in coercive FPPs including concern about child weight that were not included in the study (e.g., Swyden et al., 2017). Mothers were also asked to self-report their height and weight which may have resulted in BMI inaccuracies (e.g., Anthony et al., 2020).

This research has extended previous understandings on the role that maternal mental health symptoms have in the use of coercive FPPs (e.g., Haycraft,

2020). Furthermore, the research also indicates that maternal self-efficacy for regulating food intake are predictors of use of such FPPs.

4.6 Conclusion

In conclusion the presence of anxiety, depression and low self-efficacy for self-regulating food intake are related to greater engagement of coercive or controlling FPPs among mothers with overweight and obesity. Caution should be taken however, as maternal anxiety was found to predict just one coercive FPP. Maternal food intake self-efficacy was found to be significant predictors of greater use of such FPPs. These findings have implications for various healthcare professionals working with families in obesity prevention programmes and suggest value in supporting mothers' self-efficacy for regulating their own food intake to support maternal engagement in responsive FPPs with their children.

Chapter 5

In preceding chapters, study findings report the relationships between a number of maternal factors and use of FPPs with their own child. However, the literature covered in the introduction highlights the important environmental influences that may be linked to the use of FPPs. Given the increasing use of media platforms to seek parenting-related information (e.g., Fierloos et al., 2022, Ryan et al., 2022), study 4 (chapter 5) aimed to understand the content validity of FPP-related claims made within news articles.

This chapter has been published as: Patel, C., Walasek, L., Karasouli, E. and Meyer, C., 2022. Content and Validity of Claims Made about Food Parenting Practices in United Kingdom Online News Articles. *International Journal of Environmental Research & Public Health*, *19*(9), p.5053.

Minor formatting changes have been made to ensure consistency with the rest of this thesis.

Study 4: Content and validity of claims made abut food parenting practices in United Kingdom online news articles

5.1 Abstract

The objective of this study was to qualitatively summarise the content of online news articles pertaining to food parenting practices and determine whether this content is substantiated by the scientific literature. News article data were identified and collected from United Kingdom online news published during 2010–2017 period using the News on the Web corpus. A coding framework was used to categorise the content of news articles to identify information related to food parenting practices. Then, claims made about food parenting practices were extracted from relevant news articles. Each claim was evaluated to determine the extent to which any claims were supported by the available scientific research evidence. The study identified ten claims across thirty-two relevant online news articles. Claims made across the news articles reported on the following food parenting practices: food restrictions, food-based threats and bribes, pressure to eat, the use of food to control negative emotions, food availability, food preparation, and meal and snack routines. Eight out of the ten claims identified did not refer to scientific research evidence. News articles frequently lacked detail and information to explain to readers why and how the use of certain food parenting practices could have a lasting impact on children's health outcomes. Considering the influence that news media has on parenting, the reporting of food parenting practices in news articles should aim to provide a balanced view of the published scientific evidence and recognise the difficulties and barriers that prevent the use of helpful and healthy food parenting practices. The study results in this paper could be used to aid and structure the dissemination of food parenting practice research findings in the media, inform public health education to influence perceptions of unhelpful food parenting practices, and promote parental use of responsive food parenting practices.

5.2 Introduction

Food parenting practices (FPPs) encompass a range of diverse parental approaches for influencing child eating behaviours and food consumption (Vaughn et al., 2016). FPPs typically fall into one of three overarching domains: coercive control, structure, and autonomy promotion (Vaughn et al., 2016). Coercive control FPPs involve parental use of restriction, pressure to eat, food-based threats and bribes, and the use of food to control negative emotions (Vaughn et al., 2016). Structure-based FPPs include food rules and limits, limited/guided food choices, monitoring, meal and snack routines, modelling, food availability, food accessibility, and food preparation (Vaughn et al., 2016). Finally, autonomy promotion FPPs include nutrition education, child involvement, encouragement, praise, reasoning, and negotiation (Vaughn et al., 2016).

A large amount of research now exists in the literature showing that FPPs can have a long-lasting effect on a child's eating behaviour as well as on their attitudes and beliefs about food (Blaine et al., 2017, Roberts et al., 2020, Shloim et al., 2015, Vaughn et al., 2016, Yee et al., 2017). For example, coercive control FPPs such as maternal use of overt restriction is linked to potentially harmful eating behaviours such as emotional eating and eating in the absence of hunger (Boots et al., 2018, Galindo et al., 2018, Gerards & Kremers, 2015, Haszard et al., 2019, Rodgers et al., 2013). In contrast, FPPs that are based on structure and autonomy promotion can facilitate the consumption of healthy foods (e.g., modelling of fruit and vegetable consumption) and the development of positive food-related cognitions (Draxten et al., 2014, Pearson et al., 2009, Yee et al., 2017).

Parents use a variety of sources to find information regarding how to feed their children, including family, friends, and media. One rich and easily accessible source of information for parents is the news media (Carruth & Skinner, 2001, Moon et al., 2019, Moseley et al., 2011, Radey & Randolph, 2009, Walker, 2005), with many online news outlets offering specialist webpages focused on parenting (e.g., https://www.theguardian.com/lifeandstyle/parents-and-parenting). From

2007 on, there has been an increasing trend in the UK of adults reading online news, newspapers, and magazines (ONS, 2020) and a concurrent decline in interest in printed news and magazines (Ofcom, 2021). As of 2020, approximately seventy percent of adults in the UK accessed online news sources (ONS, 2020), in comparison to around one-third of adults who accessed printed news (Ofcom, 2021). Indeed, with the widespread accessibility of the internet, parents now have unprecedented access to large volumes of online articles offering advice about child-rearing practices. The demand for this type of information is substantial, with health- and medical-related articles being among the most sought-after content (e.g., https://www.altmetric.com/top100/2019/).

The mass media play an important role in the delivery of parenting advice, and can improve parents' knowledge, confidence, and skills (Sanders & Calam, 2016). Furthermore, the information conveyed in news articles can influence beliefs and social norms about FPPs, which in turn, can affect how parents decide what their child should eat and how to encourage or discourage their child from consuming healthy and unhealthy foods (Davison et al., 2013, Harrison et al., 2011). Such beliefs are important according to behaviour change theories, e.g., Theory of Reasoned Action/Planned Behaviour (Fishbein & Ajzen, 2011), as they underpin behavioural intentions (Goldthorpe et al., 2018, Spinks & Hamilton, 2016) which may subsequently lead to specific health-related behaviours (Baranowski et al., 2003). Increasing parents' knowledge and understanding of FPPs could help improve the health of children and families as well as help to reduce incidence of eating disorders (Ciao et al., 2014, Lydecker & Grilo, 2017a) and adiposity-related conditions (Martin et al., 2004, Van Stappen et al., 2019).

At the same time, if information about FPPs in news media is lacking, inconsistent, or biased, then misconceptions and confusion might arise among parents. Indeed, this has been shown to be the case in other areas of health behaviours; medical and public health bodies have been critical of reporting on research on nutrition and eating behaviours in newspapers and Picard and Yeo (2011) stress that coverage is often based on anecdotal evidence rather

than on robust empirical evidence. For instance, Askelson and Colleagues (2009) investigated the coverage of parenting practices related to binge drinking among college/university students, and concluded that news articles underrepresented and underplayed the role that parents can have in addressing this health issue. Similarly, Kininmonth and Colleagues (2017) assessed the quality of nutrition-related news articles and concluded that the public is frequently exposed to news articles containing nutrition information of poor quality about what to consume to improve one's health (Kininmonth et al., 2017). In a similar vein, in the domain of sleep, Robbins and Colleagues (2019) found that many popular myths about sleep that are published online are typically based on limited evidence. Recent research using these myths shows that false beliefs in sleep are associated with increased engagement in behaviours that are inconsistent with recommended guidelines (Pantesco & Kan, 2021), highlighting the impact that misinformation can have on one's health.

Existing scientific research on news media has concentrated on portrayals of child and adult obesity (De Brún et al., 2015, Flint et al., 2016, Hilton et al., 2012, van Hooft et al., 2018). Across seven newspapers in the UK, "lack of parenting" was identified as a cause of obesity at an individual level (Hilton et al., 2012). This finding was supported by a study examining coverage in Swedish newspapers (van Hooft et al., 2018). In another study, it was concluded that UK newspapers typically hold parents responsible for childhood obesity (Flint et al., 2016). It therefore appears that media reporting may not consider the nuances of food-related parenting. This is worrying considering the significant role that FPPs have in the contribution to both obesity and eating-related psychopathology (Farrow & Blissett, 2005, Scaglioni et al., 2018, Shloim et al., 2015, Vaughn et al., 2016).

In summary, the impact that FPPs can have on child outcomes, including childhood obesity and problematic eating behaviours, makes it important to establish how FPP-related information is portrayed by online news outlets. Furthermore, considering the importance of the news media in shaping parents' decisions, it is necessary to evaluate how the most prominent advice

on online platforms relates to the growing body of empirical research in this domain. Therefore, the focus of the present study is on media representations related to FPPs. This study has two aims: first, to explore the content of online news articles pertaining to FPPs through a large dataset of online media articles, and second, to determine whether the claims made in online media articles are substantiated by the scientific literature in this field.

5.3 Methods
5.3.1 Data

Data were collected using the News on the Web (NOW) corpus (https://www.english-corpora.org/now/) (accessed on 7 April 2021) (Davies, 2017). The NOW corpus is one of the largest databases of articles from magazines and newspapers published online. These data contain articles published online in the English language across twenty countries from 2010 onwards. The corpus is updated daily, and as of April 2020 contained approximately 9.75 billion words from approximately 300,000 articles (Davies, 2017). For this study, we considered articles published online by UK news outlets between 2010 and July 2017, the latest date available at the time this research was conducted.

5.3.2 Article Search/Mining

We performed a string search using R on each article in the corpus. Key FPP words were identified and adapted from an FPP content map that categorised FPPs under three constructs: coercive control, structure, and autonomy promotion (Vaughn et al., 2016). This categorisation has been reflected in other recent systematic reviews (Patel et al., 2018, Shloim et al., 2015, Yee et al., 2017). Our objective was to identify articles that were most likely to include content related to FPPs. We therefore created two lists of words relating to FPPs (e.g., restrict, monitor, pressure) and eating (e.g., diet, family, food). For each article, we calculated the proportion of FPP and family words relative to the total number of words in a single article. Following visual inspection of the data by CP and LW, it was decided to further classify the data by selecting articles that were in the top tenth percentile with respect to

the proportion of diet-related and FPP-related words, creating two individual datasets of news articles. We cross-referenced the two datasets to identify the articles which contained the most food-related and the most FPP-related words. As a result, our dataset contained 89 articles that contained the largest proportion of words from the two lists.

5.3.3 Analysis

The first author (CP) read all 89 identified articles to check their relevance to FPPs. Initial analysis began by reading the article title and main text and assigning FPP labels to generate raw data codes. Additionally, information on the news outlet, year of publication, tone of the article headline (negative, positive, or neutral (Chen & Lawrie, 2017)), reference to "experts", and references to parents or grandparents were retrieved. The coding framework can be seen in Table 15.

Table 15: Coding framework for news articles

Variable	Description
Month, Year	Month and year of article's publication
News outlet	Name of the online news platform
Central topic	The article's central topic of discussion, e.g., childhood obesity
Headline tone	Positive/negative/neutral/no headline
Reference(s)	The article refers to findings from a research study/survey, poll, or book release
Article voice	Who is the article written by? e.g., Journalist, personal account.
Articles focus	Does the article focus on mothers, fathers, parents, caregivers, or other family members?
Expert commentary	The article cites comments from an expert, e.g., professional body, dietitian.
Advice	The article provides advice for the reader and/or wider society
Food-related parenting practice	The article mentions a food-related parenting practice, e.g., restriction, pressure to eat, using food to control negative emotions, modelling.

Certain aspects of the analysis were adapted from Robbins et al (2019), who studied expert perception of sleep claims published online using the Delphi method. In the present study, claims made about FPPs were extracted from news articles. A claim was defined as a statement that suggested or implied that there was a relationship between an FPP and child outcome. Any duplicate claims were consolidated into one claim. Each claim was then grouped into one of three overarching previously published FPP constructs: coercive control, structure, autonomy promotion (Vaughn et al., 2016). Claims that did not fall under one of these constructs were placed under a fourth category, 'other'. All claims were double-coded by an independent

coder (MRes student with eating behaviour expertise) to determine intercoder reliability (k = 0.62) (Lacy & Riffe, 1996). Landis and Koch (1977) recommend that intercoder values equal to or larger than 0.61 be interpreted as substantial agreement . In the current study, the results were reviewed and scrutinized by all authors. Published work was used to evaluate the extent to which the content of news claims could be supported by scientific research evidence (e.g., systematic reviews and meta-analyses, randomized controlled trials (RCTs), genetic studies, and longitudinal studies).

5.4 Results

Sections 5.4.1 to 5.4.4 provide a high-level description of the news articles included in the analysis. Section 5.4.5 onward presents the claims identified from the included news articles.

5.4.1 News article characteristics

Thirty-two out of the 89 identified news articles mentioned an FPP, and an overall total of ten claims were extracted from 32 articles mentioning FPPs (Figure *12*).

Figure 12: News article flow chart
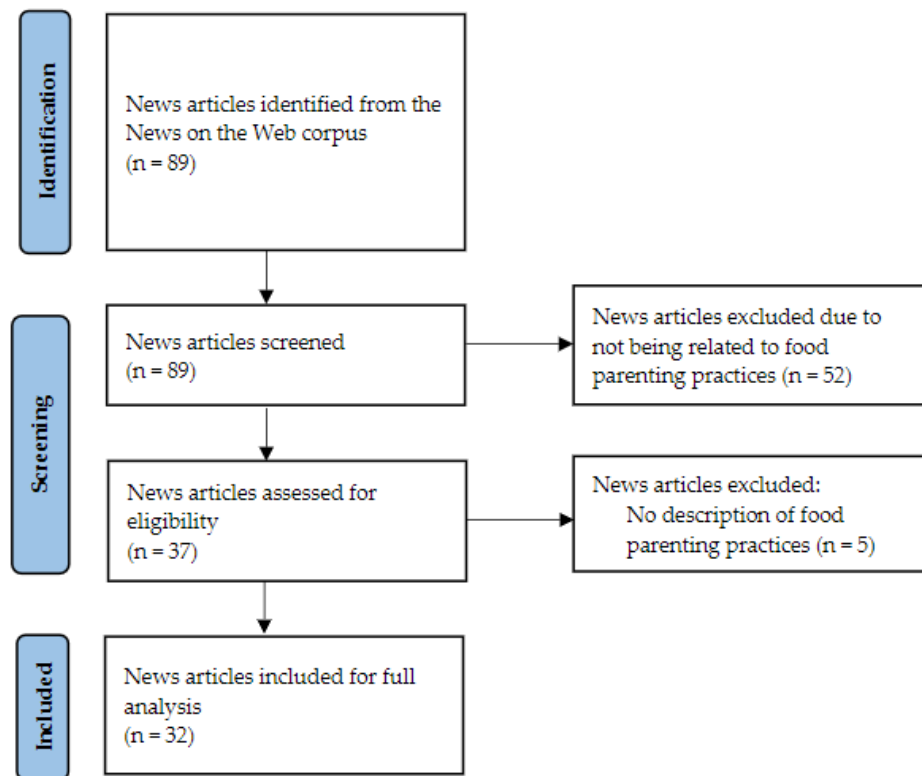
In keeping with previous research, articles were published on a variety of newspaper website genres, such as serious (e.g., BBC News), 'middle-market' tabloids (e.g., Daily Mail) and tabloids (e.g., The Sun) (Hilton et al., 2012, MacLean et al., 2015) (Table 16). Articles mentioning FPPs were most frequently published in middle-market tabloids (Daily Mail, n = 16). The majority of articles were written by journalists; however, two articles were personal accounts written by mothers about giving food to their children, and one article was a compilation of accounts of being given food as a child from adults who had overweight/obesity as children.

Table 16: Articles by newspaper genre and publication title.

Genre	Publication Title	n Articles	Average Weekly Usage as of 2017 (%) [1]
Serious	The Independent	2	6
	BBC News	2	47
	The Guardian	1	14
	The Telegraph	1	6
	The Yorkshire Post	1	10 *
		7	
Middle-market tabloid	Daily Mail	16	14
	Daily Express	2	NR
	Huffington Post UK	1	14
	The Scotsman	1	NR
		20	
Tabloid	Mirror	3	6
	The Sun	1	5
		4	
Local	Longridge Today	1	10 *
	Total	32	

[1] Out of n = 2112 surveyed; * survey question referred to 'website of local paper' (Reuters Institute, 2017).

5.4.2 Headline tone

Out of the 32 news articles, the majority (n = 22) had a negative or attention-seeking headline (e.g., "Are you killing your kids by feeding them too much of the wrong food?" (Mirror, 2011), seven article headlines were considered neutral (e.g., "Do toddlers need cake as well as carrots?" (BBC News, 2010), and three were positive (e.g., "Children won't eat their greens? Stickers work better than 'false' words of praise" (Daily Mail, 2011).

5.4.3 Expert commentary and references

The majority of articles claimed to be referring to studies, government reports, and/or included at least one "expert" comment (study/survey/report, n = 2; experts, n = 5; study/survey/report and expert, n = 17). Experts cited in the articles included spokespeople from charities (n = 4, e.g., Caroline Walker Trust); government departments (n = 4, e.g., Department of Health); research or academic institutions (n = 10, e.g., National Centre for Social Research); healthcare professionals (n = 12, e.g., Dietitians); and professional bodies (n = 10, e.g., Royal College of Paediatrics and Child Health).

5.4.4 Parents, mothers, working mothers, and grandparents

Articles were mostly written about parents (n = 19). A proportion of articles specifically referred to mothers (n = 5), working mothers and parents (n = 2), and grandparents (n = 2). Mothers were discussed in personal accounts from individuals recalling being given food as a child in two articles. Working mothers were generally mentioned as lacking time to prepare food and meals, and grandparents were discussed as caregivers and indulging their grandchildren with food.

5.4.5 Coercive control

Claim 1: Parents Restrict Food(s) from Their Children's Diet for Health Reasons to Prevent Obesity (BBC News, 2010; Mirror, 2010; Daily Mail 2013)

Restriction was reported in three news articles in relation to parental control over their child's weight and restricting specific food groups for health reasons. First, one news article claimed that carbohydrates are being restricted from children attending nursery in order to prevent childhood obesity (BBC News, 2010). Another news article described a mother's account of restricting her child's food intake to prevent the child becoming overweight (Mirror, 2010). A third news article described how a celebrity avoids giving her children pasta, bread, and rice, as she perceives these foods to be "bad" (Daily Mail, 2013).

Research evidence suggests that the use of restriction can have a detrimental impact on a child's ability to self-regulate cues of hunger and satiety (Hughes & Frazier-Wood, 2016), their later eating habits (Vaughn et al., 2016), and on child adiposity (Birch & Fisher, 2000). Although news articles used comments from experts to demonstrate this, they did not cite relevant scientific evidence. For example, longitudinal studies have identified that overt food restriction predict lower preference for fruit and vegetables and heightened preference for unhealthy, calorie-dense foods (Boots et al., 2019, Entin et al., 2014), consumption of sugar-sweetened beverages (Park et al., 2015), emotional eating among children, increased weight status (Fisher & Birch, 2002), and overeating (Rodgers et al., 2013). However, the use of restrictive FPPs is a complex matter, which was not considered within the news articles. Further research evidence indicates that parental restriction is influenced by a child's weight status, and parents are more likely to restrict food in circumstances where children have a higher body mass index (BMI) (Derks et al., 2017). Therefore, mild use of restriction could in fact be beneficial for children with increased BMIs (Rollins et al., 2016).

Claim 2: Parents Who Pressure Their Children to Finish the Food on Their Plates Are 'Fueling Obesity' (Daily Mail, 2013; Daily Mail, 2015)

Pressure to eat was mentioned in two news articles. One news article discussed how pressure to eat manifests in parental insistence that their child clear their plate of food at mealtimes, which was based on the results of a population-based research study (Loth et al., 2013b). This news article provided expert commentary from the study's author, who explained that pressuring children to eat undermines children's internal cues of hunger and satiety.

The information presented in this news article is supported by longitudinal research indicating that parental pressure to eat more food is associated with children's increased food consumption and eating in the absence of hunger (Harris et al., 2014, Galindo et al., 2018). This is also supported by a meta-analysis of FPPs and children's eating behaviours reporting that pressure to

eat is positively associated with children's unhealthy food consumption (Yee et al., 2017). Conversely, other studies (cross-sectional and systematic reviews) suggest that pressure to eat is used by parents who are concerned about their child's weight, and is in fact used in response to a lower child body BMI (Eichler et al., 2019, Jansen et al., 2014, Shloim et al., 2015), which was not discussed within the news articles.

The second news article was written by a mother who described pressuring her children to eat ("forcing them to eat their peas and sweetcorn") with the intent that they consume healthy foods. This news article did not cite a research study or provide expert commentary, and research evidence suggests that although pressure to eat can be useful in achieving healthy food consumption, in the long-term it can facilitate aversions to the healthy foods children feel pressured to eat (Galloway et al., 2006, Gregory et al., 2011, Robert Batsell et al., 2002, Savage et al., 2007).

Claim 3: Parents Teach Their Children Emotional Eating Behaviours (Daily Mail, 2014)

The news article mentioning the use of food to control emotions described how emotional eating is developed at a young age, often in response to stressful events. In addition, the news article advocated the notion that eating behaviours are learned from parents and that adults are more likely to eat in response to their emotions if they were provided food to control their emotions as a child.

In support of this news claim, a large twin study (n = 398) identified that parental use of food to control negative emotions is influential on children's under- and overeating in response to stress (Herle et al., 2018a), and that such eating behaviours are learned by children from their environment, accounting for over 70% of variance among four-year-old twins rather than genetic transmission (Herle et al., 2018a, Herle et al., 2018b). This is supported by further research. First, in a large sample of mother–child dyads (n = 822), maternal emotional eating was found to predict their child's emotional eating (Zarychta et al., 2019). Second, another study identified that recollections of

being provided food for emotional regulation as a child is strongly associated with emotional eating as an adult (Tan et al., 2016a). Third, less parental structure and lower family functioning was shown to predict emotional over- and undereating, respectively (Bjørklund et al., 2019).

Claim 4: Stickers Are Better Than 'False' Words of Praise to Encourage Children to Consume Vegetables (Daily Mail, 2011)

The use of non-food-based incentives to eat was mentioned in one news article drawing from the findings of a RCT (Remington et al., 2011). The news article provided information and practical advice on how a non-food-based incentive to eat (i.e., giving a child stickers) can be more helpful in encouraging children to consume vegetables than parental use of verbal praise.

Among the research evidence, another RCT indicated that taste exposure and sticker rewards can increase a child's liking for and intake of the target vegetable (Corsini et al., 2013), thus supporting the news article's claim. More recently, two systematic reviews of methods aiming to improve vegetable preference and intake, respectively, showed that vegetable consumption in young children can be increased with the use of non-food-based incentives (Appleton et al., 2018, Holley et al., 2017).

5.4.6 Structure

Claim 5: Preparing Meals from Scratch Could Decrease a Child's Risk of Obesity (Daily Mail, 2010; Daily Mail, 2010; Daily Mail, 2012; Daily Mail, 2013; Huffington Post, 2013; The Independent, 2014; Daily Mail, 2015; Daily Mail, 2016; Daily Express, 2016; The Scotsman, 2016)

Food preparation was discussed among a number of articles (n = 10) and was described in a variety of contexts. The main news message related to food preparation was that parents should prepare home-cooked meals to avoid the risk of their children becoming overweight/obese.

The information presented in the news articles is consistent with the broader research literature on the topic. For example, a cross-sectional analysis of data

from the UK National Diet and Nutrition Survey based on over ninety thousand eating occasions revealed that eating at home is associated with less sugar and takeaway consumption (Ziauddeen et al., 2018). Furthermore, among a large population of adults (n = 11,396) more frequent home-cooked meal (≥5 times per week) consumption was shown to be associated with greater likelihood of a healthy BMI (Mills et al., 2017a). A systematic review of the determinants and outcomes of home cooking identified an association between home cooking and lower BMI (Mills et al., 2017b). Although the news article did not describe the nature of the food preparation (healthy vs. unhealthy methods, e.g., frying vs. baking), research shows that healthier food preparation is associated with a reduced risk of high weight and obesity among adolescents (Kramer et al., 2012).

Claim 6: Parents Who Take Their Children to Restaurants Are Providing Meals That Account for Approximately Half the Recommended Child Daily Calorie and Sodium Intake (The Independent, 2011)

The calorie and sodium intake from meals consumed outside of the home was discussed in one news article, and there is published research evidence to support this claim. For example, an analysis of n = 39,266 UK restaurant chain children's meals demonstrated that they are excessively energy-dense, contain high levels of saturated fats, and salt in amounts that are inappropriate for children (Young et al., 2019). A longitudinal study aimed at reducing food consumption outside of the home among seven- to eleven-year-old children with overweight/obesity resulted in both BMI and percent body fat reductions (Altman et al., 2015). Additionally, an analysis of n = 9,911 meal occasions showed that children who eat at home have higher vegetable consumption, lower sweets consumption, and lower soft drink consumption (Suggs et al., 2018).

Claim 7: Children Given the Same Foods as Their Parents Are More Likely to Have Healthier Diets and Nutritious Meals (Daily Mail, 2013; The Independent, 2014)

Family meal and snack routines were mentioned within two news articles in relation to parents and children eating the same foods as well as the associated health and weight benefits.

The information presented within these news articles is largely supported by research evidence. For example, among a large sample of adolescents in a ten-year longitudinal study, family meals were found to be a protective factor against high weight and obesity (Berge et al., 2015b). Furthermore, parents who had regular family meals as adolescents, reported having a healthier diet and better weight-related outcomes, when compared to parents who did not experience regular family meals as adolescents (Berge et al., 2018, Utter et al., 2018). Additionally, Dallacker and Colleagues (2018) conducted a systematic review and meta-analysis of the nutritional health correlates of family meals, finding positive associations between frequent shared family meals and nutritional health among children.

Claim 8: Children from Low-Income Households Are Provided an Unhealthier Diet Consisting of Takeaways or Ready Meals (Daily Mail, 2010; The Guardian, 2013; The Sun, 2017)

Food availability was mentioned in three news articles. One of these articles reported the results of a charity-commissioned report. The main message regarding food availability was the low number of fruits and vegetables consumed in low-income households, as less healthy prepared foods are more affordable.

The information reported in news articles aligned with the existing research evidence. For instance, data from a large cohort of UK adolescents (n = 10,736) indicate that high consumption of calorie-dense foods and low fruit and vegetable consumption is most prevalent among adolescents living in poverty (60% below the UK median household income) (Noonan, 2018).

More recently, this association has been reported with unhealthy foods, where home availability of calorie-dense foods predicts childhood consumption of calorie-dense foods (Boles et al., 2019). Often, research in this area is cross-sectional; however, a systematic review identified that fruit and vegetable availability in the home environment is often associated with children's fruit and vegetable consumption (Ong et al., 2017).

5.4.7 Other

The remaining two claims (claims nine and ten) refer to aspects of FPPs, namely, weaning practices and portion size, that are not included under the FPP constructs devised by Vaughn and Colleagues (2016).

Claim 9: Parents Begin Weaning Too Early Using Inappropriate Foods (Telegraph, 2011)

Early weaning was mentioned in one news article, with reference to parental provision of inappropriate foods for their child's age, and subsequent development of childhood obesity and adiposity-related conditions. Within this news article, parents' lack of knowledge was implicated as a problem.

The NHS (2019b) currently advises parents to begin weaning from the age of six months by providing a variety of foods in addition to breastmilk or formula. While this information is available for parents in the public domain, it was not referred to in the news article. With regard to the suggestion of a link between early weaning and children being overweight, the research to date is unclear. One epidemiological study indicates no association between early weaning and children having overweight/obesity (Moschonis et al., 2017). A systematic review of evidence on the relationship between the introduction of complementary feeding and high weight in adolescence and adulthood concluded that study results in this research area are conflicting, and ascertaining a conclusive relationship is problematic (Araújo et al., 2019).

Claim 10: Parents Overfeed Their Toddlers and Children and Provide Children with Adult-Sized Portions of Food (Daily Mail, 2010; Daily Mail, 2012; Huffington Post UK, 2013; Daily Mail, 2014; Daily Express, 2014; Daily Mail, 2016; Daily Mail, 2016; Longridge Today, 2016; The Scotsman, 2016)

Nine news articles reported information on child portion sizes and subsequent contributions to the development of overweight/obesity. These news articles reported that parents are providing food portions larger than the recommended size for children. However, only one of these news articles provided advice for parents on recommended portion sizes.

The information reported in the news articles aligns with research evidence demonstrating that consumption of large portions is associated with increased energy consumption and high child BMI (Huang et al., 2004, Piernas & Popkin, 2011). Additionally, portion sizes determined by parents predict child BMI (Potter et al., 2018). There are, however, several influential factors that interact with the portion sizes parents provide that were not mentioned in these articles. These include the portion sizes parents serve to themselves, parent and child BMI, perceptions of child hunger, parents' emotional responses, habits, and beliefs toward food, as well as children's environmental and social influences (Curtis et al., 2017).

5.5 Discussion

This study identified ten claims from thirty-two online news articles published in the UK between 2010 and 2017. The findings show that claims made by online news articles covered an array of FPPs, including those that involve coercive parental control (such as restriction, threats and bribes, pressure to eat, and the use of food to control negative emotions), and structure (such as food availability, food preparation, and meal and snack routines).

With the exception of two claims (claim two and four, relating to non-food-based incentives to eat and pressure to eat) that were based on the results of two research studies, the remaining claims did not directly refer to any

published scientific research evidence. For instance, claim one was focused on the restriction of food groups from children's diets for health reasons. Parents reading these news articles may view restricting certain foods as a simple strategy to limit their child's intake and control their weight. What is of concern, however, is that the information presented within these articles is not supported by scientific evidence. Furthermore, the articles relating to this particular claim did not report further information to explain why restriction has a detrimental impact on child outcomes. This is true of the claim suggesting that parents teach their children emotional eating behaviours as well (claim five). This finding echoes reports that over half of nutrition-related news coverage is not based on published research, and that coverage fails to report publication journals or author names (Kininmonth et al., 2017).

Many of the news articles analysed in the current study frequently cited just one expert opinion and/or one source of study findings, with little to no explanation around the long-term impact that FPPs can have on child outcomes. For instance, claim nine reported that parents begin weaning too early and offer age-inappropriate food to children. Yet, the news article did not provide advice to parents on the appropriate age to begin weaning, feeding strategies that could be adopted, nor on foods that could be offered to children. Similarly, no advice was offered on age-appropriate portion sizes for children in claim ten (that parents overfeed their toddlers and children and provide children with adult-sized portions of food). From the news articles analysed here, the factors affecting parental use of certain types of FPPs were rarely reported and described. This is important to acknowledge, as parental motivation for the use of certain FPPs is complex (Vaughn et al., 2016). For instance, claim nine reports that children from low-income households are provided an unhealthier diet comprised of takeaways or convenience meals. However, lower parental cooking self-efficacy is a factor that is associated with fewer meals made from basic or raw ingredients (Horning et al., 2017). Furthermore, parental stress is another factor that has been shown to influence the likelihood of serving a homemade meal in the home as well as the use of coercive FPPs (Berge et al., 2017). Claim ten reports that parents overfeed

their toddlers. Indeed, the literature demonstrates that large portion sizes are associated with increased energy consumption and child BMI (Huang et al., 2004, Piernas & Popkin, 2011). However, research evidence reports that parents provide portion sizes they themselves have learned to be appropriate for their child (Kairey et al., 2018). As might be expected, the news articles fail to convey the nuance and context-dependence of FPP use.

The results of this study further demonstrate that a large amount of research evidence is disregarded in the reporting of FPPs. There was a lack of direct references to academic literature within news articles. This is concerning, as lack of detailed reporting on FPPs could lead to continued parental engagement with FPPs that are known to have poorer outcomes on children's health, despite their use by parents being well-intentioned (e.g., use of food to control negative emotions) (Vaughn et al., 2016). Indeed, previous sleep myth-based research shows that presentation of misinformation influences continued engagement in behaviours that are not supported by recommended guidelines (Pantesco & Kan, 2021), although further research is needed to confirm such findings in relation to FPPs.

Despite this, we found that certain claims made in the online news articles could be supported by scientific evidence. This stands in contrast to previous research findings on beliefs about sleep ($n = 20$), where reports were found to have a largely ambiguous evidence base (Robbins et al., 2019). There was one claim identified in the current study, claim nine, where the research evidence connecting early weaning and childhood obesity remains unclear (Araújo et al., 2019).

From the news articles included in the study, the findings highlight rare news media reporting of FPPs involving structure and those that aim to support child autonomy, such as parental role modelling of healthy food consumption, monitoring, nutrition education, and child involvement, which have been shown to have positive, healthy child outcomes (Vaughn et al., 2016, Yee et al., 2017). Reviews of the literature in this area indicate that modelling healthy food consumption, providing a healthy home food environment, and

FPPs that support encouragement and independence in children's eating behaviours are associated with a healthier dietary intake and eating behaviours (Dallacker et al., 2018, Vaughn et al., 2016, Yee et al., 2017). Academics, researchers, and press offices who engage with news media outlets could aid future reporting by considering the readership prior to discussions. The research community could promote the use of structure- and autonomy-promoting FPPs and highlight the benefits of these practices when appropriate.

From the news articles analysed, there was a lack of reporting on fathers. The reason for this is likely due to the role that mothers have on child feeding from the postpartum period onwards. Research reports that mothers have an increased responsibility for family work, including feeding their children, when compared to fathers (Pratt et al., 2019). This finding is in line with the FPP research field generally, although the inclusion of fathers in FPP-related research is improving (Davison et al., 2020). Previous research reports that many news articles are reported in a 'negative' tone (Chen & Lawrie, 2017, van Hooft et al., 2018). Although our findings cannot be directly compared, most of the news articles analysed in the current study presented a negative tone and attention-seeking headlines.

The news media have a platform to shape social norms and beliefs, and therefore may influence parents' understanding of FPPs. In order to counteract these practices, the British Nutrition Foundation charity created the "Previous facts behind the headlines" (https://archive.nutrition.org.uk/nutritioninthenews/headlines.html) website with the aim of providing an evidence-based summary of health research that is published in the news. The National Health Service provides a similar website, "Behind the Headlines" (https://www.nhs.uk/news/), in an effort to clarify health news in the media. There is an opportunity for the media to aid public health efforts to encourage parents to provide recommended portion sizes using, for instance, the British Nutrition Foundation's information on healthy living. Given the implications of poor reporting of health issues in the media (potentially due to the lack of details within news articles, lack of input

from researchers/experts/authorities, shortening or removal of important information and details at editorial level, and the need to ensure that a news article is appealing or attention-worthy to the reader), the results of this study could be used to aid the development of guidelines for FPP-related reporting for journalists.

The results of the present study raise possibilities for further study recommendations. First, research could investigate the correlates between news content, parental knowledge, and behaviour. Second, there may be merit in exploring alternative media sources such as social media-based online discussions, which may be more frequently accessed by parents. Third, it would be interesting to understand whether the content of news articles related to FPPs affects parental thinking around FPPs and the types of foods offered to their children. Finally, in claim three of the results (parents teach their children emotional eating behaviours), it was reported in the articles that eating behaviours are transmitted from parent to child. Since there is research evidence supporting this (Herle et al., 2018a, Jahnke & Warschburger, 2008, Zarychta et al., 2019), there may be value in extended research exploring the links between parents' recollections of being provided food as children and this influence on their use of FPPs with their own children.

The study results are somewhat limited by the nature of the data. The news articles and the claims extracted are written in lay language and can be subject to multiple interpretations. To alleviate this issue, each extracted claim was coded by a second reviewer against each news article in order to counteract bias. One issue is that our articles, which date as far back as 2010, may include views on FFPs that are now outdated. Although the relatively small sample size did not allow us to explore time trends, we believe that the articles' age is of little importance in the context of online content. Each of the news articles covered in the present paper can be easily discovered and accessed by searching for FPP-related content online. As such, it is likely that these articles are being consulted by parents who are seeking information about the optimal ways of feeding their children. Finally, another potential limitation is that our analysis focused on UK-based publications only. However, the fact

that the articles appear online means that they can be accessed by anyone around the world who speaks English. Nonetheless, future research may focus on cross-cultural differences in the coverage of FPPs in online news.

5.6 Conclusion

This research was deemed necessary due to the importance of the news media as a source of health and medical information for parents. The current study determined that a large amount of research evidence is disregarded in news media articles. What is concerning, and a missed opportunity for the news media, is the lack of detail and information provided within news articles to explain why, and how the use of some FPPs, can have a long-lasting and sometimes unintentional impact on a child's relationship with food, BMI, and other health outcomes. Future portrayal of FPPs in news articles should acknowledge the difficulties and barriers that prevent the use of helpful and healthy FPPs and include practical strategies for overcoming barriers such as fussy or selective eating. While it is not the news media's responsibility to provide health advice, it is important that researchers and practitioners are informed about what is published in the news around FPPs. There may be an opportunity for interventions to address myths or parental misperceptions due to what they have read. The reporting on FPPs in news media should aim to provide a balanced view of the published scientific evidence. This is important because of the news media's role as a powerful source of influence on social norms, beliefs, and health issues, to the extent that the media can even act as part of the health provider community (Schwitzer et al., 2005).

Chapter 6

In study 4 (chapter 5), it was found that news articles related to FPPs were rarely based on scientific evidence. Further, news articles often lacked explanations on why use of certain FPPs such as restriction can be detrimental to child outcomes. Given the increasing use of social media platforms to find parenting information, and the influence of social media use on parenting in general (Egmose et al., 2022, Germic et al., 2021, Moujaes & Verrier, 2021), study 5 (chapter 6) was designed to identify the topics of concern that are raised by users of a parenting focused social media platform (Mumsnet).

This chapter is under consideration by *Maternal & Child Health* as: Patel, C., Shuttlewood, E., Karasouli, E. and Meyer, C. Exploring online discussions about child feeding practices and, on a parent, -targeted social media platform.

Study 5: Exploring online discussions about child feeding practices on a parent-targeted social media platform.

6.1 Abstract

The aim of the study was to ascertain the topics of concern regarding child feeding that are raised by users on the popular social media platform, Mumsnet. Posts (N = 127) about child feeding interactions were identified in the weaning discussion forum from a 1-year period (January 2021 – December 2021). Data (posts) were analysed using content analysis and were grouped under three overarching domains: expressing emotions, social support and perceived problems with child feeding interactions. The results have two important implications. This innovative data collection method can lend itself as an additional method for capturing data that could be complementary to traditional research methods such as questionnaires. In addition, healthcare professionals can be alerted to the types of concerns raised by users in the weaning discussion group and tailor support accordingly offered to the child feeding situations users experience.

6.2 Introduction

One influential determinant of children's eating behaviours and childhood weight is food parenting practices (FPPs) (e.g., Haszard et al., 2019, Herle et al., 2018a). FPPs are behaviours used by parents to influence their child's attitudes, beliefs, and behaviours related to food consumption (Shloim et al., 2015, Vaughn et al., 2016). Some examples of FPPs include using food to reward good behaviour, monitoring children's food intake, role modelling food consumption, and reasoning or negotiating (Vaughn et al., 2016). The ways in which parents provide food to their children and oversee their eating behaviours are important for establishing healthy eating patterns later in life (Birch et al., 2007, Burnett et al., 2021, Daniels, 2019, Patel et al., 2022, Yee et al., 2017).

Parents are increasingly using social media as a source that is trusted for child health information and social support throughout their child/ren's development (e.g., Asiodu et al., 2015, Bryan et al., 2020, Dworkin et al., 2013, Haslam et al., 2017, Moon et al., 2019). This often focuses on topics around child feeding (e.g., Clapton-Caputo et al., 2021, Fraser et al., 2021, Garcia et al., 2019, Lebron et al., 2020, Sutter et al., 2021). The internet and social media are reportedly as influential as family and friends in shaping decisions around parenting and broader health-related decision-making (Garcia et al., 2019, Moon et al., 2019). Research indicates that online parenting communities allow parents to access virtual social support and to compare alternative sources of information (Duggan et al., 2015, Frey et al., 2022).

Mothers often show interest in joining online communities centred around child health (Mitchell et al., 2014), and are motivated to seek such information from other parents with lived experiences (Frey et al., 2022). It seems plausible then, that information available to parents from social media communities could influence parents' perceived norms related to FPPs (e.g., Moon et al., 2019). Such social norms may reinforce parents' current FPP behaviours or prompt changes in FPPs to reflect those of their peers online.

In a meta-synthesis investigating how mothers exchange information around pregnancy and parenting in online communities, it was found that mothers shared social norms by normalising experiences and making them feel assured (Xie et al., 2021). Furthermore, users of social media that discuss breastfeeding practices report online groups to be a helpful source of information, leading to organically formed community practices (Skelton et al., 2020). Levels of engagement with social media, in terms of giving and receiving support are high (Duggan et al., 2015, p. 2) and mothers report consulting online forums as often as healthcare professionals for advice and support for food-related parenting information (Curney & Wilkinson, 2016). Mothers are frequently turning to information from online sources as they feel they do not obtain enough guidance from healthcare professionals (Frey et al., 2022, Garcia et al., 2019). Social media platforms are likely to facilitate social learning in a different way to other online contexts such as web pages because of the users' ability to interact with each other and tailor information. For instance, a systematic review of the social media impact on breastfeeding outcomes reports positive impacts from online communities due to readily available information, and support in a safe space with similar individuals, and therefore, provides social norm reinforcement (Orchard & Nicholls, 2020).

Previous research analysing the content of online fora has sought to understand the concerns and areas for support that parents have and need regarding their FPPs. For instance, a content analysis of Reddit discussions found that interactions revolve around their child's fussy eating behaviours (such as refusing to eat food that is offered), their child's inadequate food intake, difficult behaviours at mealtimes, and changes to their child's eating patterns (Fraser et al., 2021). Parents also seek practical, informational, and emotional support and advice for reassurance, and to normalise their child's behaviours from other parents/people (Fraser et al., 2021). Another study set up a private Facebook support group as part of a FPP intervention and it was found that mothers' posts in the group were related to the introduction of solid food, teething, and breastfeeding (Kallem et al., 2018). However, these

studies set out to explore specific discussions. The existing literature lacks high-level focused research looking at the topics and concerns initially posted in relation to parent-child feeding interactions.

Exploratory studies using unsolicited data on FPP discussions among parents online are lacking (Doub et al., 2016). Typically, research investigating FPPs used by parents is based on cross-sectional (e.g., McPhie et al., 2014, Shloim et al., 2015), longitudinal (e.g., Spill et al., 2019), and laboratory-based observational (e.g., Bergmeier et al., 2014a) studies with predefined outcomes of interest from self-report measures (e.g., "Do you let your child eat whatever s/he wants?" (Musher-Eizenman & Holub, 2007). The fluid nature of child feeding interactions mean that completing such measures is challenging. Responses require the parent to generalise their own food parenting behaviours and therefore may not be a true reflection of the interactions that parents and their child experience. More importantly, there may also be aspects of food parenting that are not currently captured by current FPP measures. Since social media is an important source of information for parents, it is crucial to understand the content of discussions of FPPs, as this can highlight areas of meaningful concerns in an ecologically valid way.

In summary, it is clear that parents access online social media platforms to obtain food parenting information, however a truly ecologically valid description of the topics and concerns raised by parents/users on social media is yet to be reported in the research literature. Therefore, this study aimed to ascertain a description of the topics and concerns of users of a popular parenting-focused online platform.

6.3 Method

Ethical approval was received by the University of Warwick Biomedical and Scientific Research Ethics Committee (REGO-2018-2307).
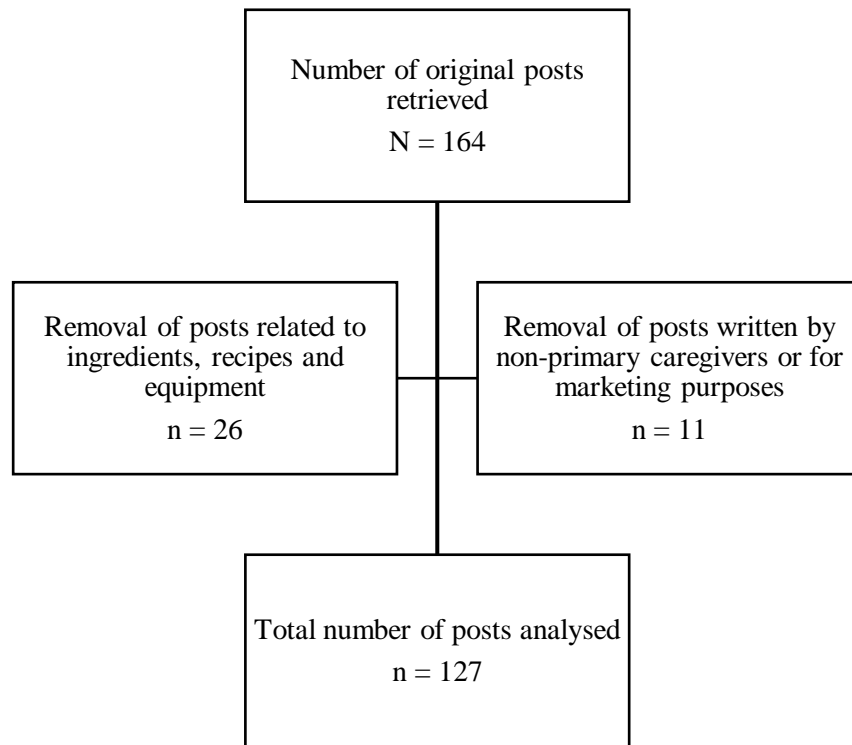
6.3.1 Data source

Mumsnet is a UK-based, online social media platform for parents that hosts information, and discussion forums where users share questions, information, and advice on parenting via "talk topics." Within discussion forums, users can post and engage in ongoing conversations ('threads') by responding to the original post. In 2020, Mumsnet had approximately 21 million monthly visits worldwide (Semrush, 2020). Mumsnet users are requested to employ a username when posting or responding to posts to provide anonymity and users are aware that content posted is publicly available upon signing up (Mumsnet, 2022).

6.3.2 Data extraction

The 'weaning' subforum was selected to extract data from since this contained the largest amount of data that is freely and openly available about food-related discussions. As the focus was on uncovering the broad patterns and themes within the online discourse, the original posts that started each thread were retained. It was reasoned that initial posts would be most representative of the wide range of concerns and topics that parents ask about when they post on the forum. Most recent threads over a 12-month period (January 2021 – December 2021) of the *Weaning* talk topic were extracted to identify up-to-date discussions posted in the forum. Data were extracted using Parsehub (https://www.parsehub.com/), a scraping tool to extract web-based data. Any potentially identifiable information was omitted prior to data analysis (e.g., names, places). A total of 164 posts were exported to Microsoft Excel for review. Of these posts, 127, were retained using the data eligibility criteria (see data eligibility criteria section below) and exported to NVivo for analysis. Figure 13 provides an overview of the process for the selection of posts for analysis.

Figure 13: Selection of posts for analysis from the Mumsnet weaning forum

```
┌─────────────────────────┐
│  Number of original posts│
│        retrieved         │
│        N = 164           │
└─────────────────────────┘

┌──────────────────────────┐   ┌──────────────────────────┐
│ Removal of posts related to│  │ Removal of posts written by│
│  ingredients, recipes and  │  │ non-primary caregivers or for│
│        equipment           │  │   marketing purposes       │
│         n = 26             │  │         n = 11             │
└──────────────────────────┘   └──────────────────────────┘

        ┌──────────────────────────┐
        │ Total number of posts analysed│
        │         n = 127           │
        └──────────────────────────┘
```

6.3.3 Data eligibility criteria

Original posts relating to child feeding interactions were considered for inclusion for analysis. Posts that discussed recipe ideas, the use of ingredients in food preparation, and equipment for preparing food or to aid eating (e.g., blenders, suction bowls) were excluded from the analysis since these posts did not discuss child feeding interactions. Further, posts written by individuals who identified themselves as someone other than the primary caregiver were excluded (e.g., childminder) along with all posts written for business or marketing purposes.

6.3.4 Data analysis

Posts were coded using the inductive and deductive content analysis approach (Graneheim et al., 2017, Hsieh & Shannon, 2005). In the lack of guidance around structured analysis of online discussion forums (Giles, 2016), several methods of qualitative analysis were considered. The content analysis approach allows for the identification of topics of concern within posts (Graneheim et al., 2017, Hsieh & Shannon, 2005). This approach has been

extensively used across the FPP research field (e.g., Fraser et al., 2021, Loth et al., 2018, Supthanasup et al., 2021). In brief, the steps of analysis were the following: (1) data immersion by repeated reading of posts; (2) scrutiny of each post word by word to derive codes and capture key concepts; (3) note making of first impressions, thoughts, and initial analysis; (4) code sorting into categories; (5) code organisation and grouping into meaningful subthemes and overall domains (Hsieh & Shannon, 2005). An example of how codes and concepts were identified can be found in Appendix H. All posts were double coded independently to reduce bias. Initial intercoder reliability was $k = 0.78$. An intercoder value equal to or larger than 0.61 can be interpreted as substantial agreement (Landis & Koch, 1977). Disagreements about codes were discussed between coders until 100% agreement was reached.

6.4 Results

A total of 133 original posts by 128 unique users from a 12-month period (January 2021 – December 2021) were analysed. Nine subthemes were identified. These subthemes were categorised into three overarching domains: expressing emotions, social support, and tackling perceived problems with child feeding interactions (Figure 14). Domains and subthemes are discussed further below. The quotes presented below are for illustrative purposes and may reflect more than one sub-theme. Posts most frequently discussed users' perceived child picky/fussy eating and food refusal (n = 93 posts) followed by users' expressions of struggling to cope with their child feeding interactions (n = 83 posts) and concern about their child's food intake (n = 78 posts) (Figure *14*).

Figure 14: Diagram of themes, subthemes, and count from the 'weaning' posts analysed[1].
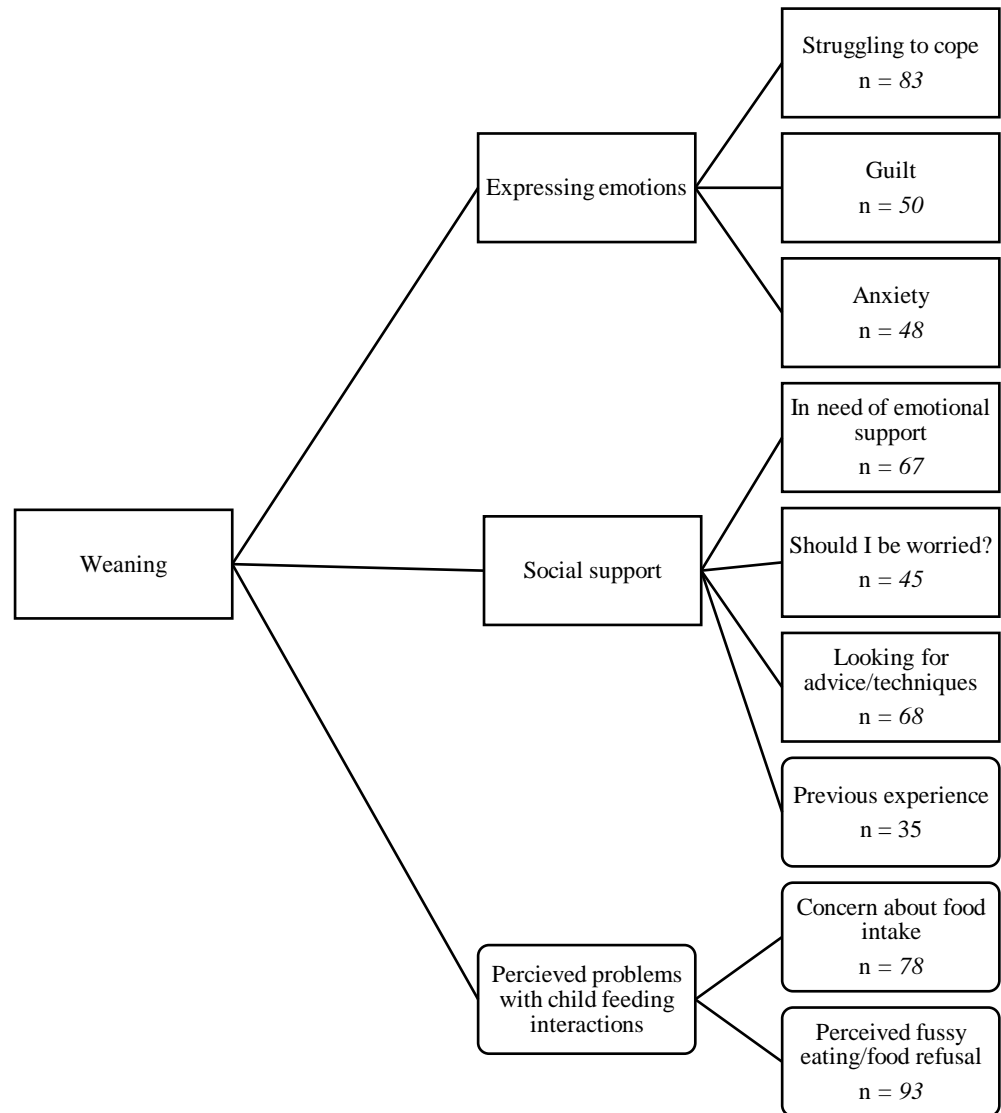
[1]Each post was assigned to more than one subtheme where applicable.

6.4.1 Theme 1: Expressing emotions

Theme one presents the emotions expressed by users' experiences of their child feeding interactions during the weaning stage. It was evident across posts that users experience uncertainty and unpredictability when managing their child's eating behaviours and mealtime interactions, and this resulted in a range of emotions expressed by users in posts. Three subthemes were identified from the data: struggling to cope, guilt and anxiety.

6.4.1.1 Subtheme: Struggling to cope

Posts included in this subtheme were those where users vented emotion and described their personal difficulties and frustrations ('at a loss', 'at my wits end') with feeding interactions during the weaning stage. Examples included food refusal, their child throwing food, finding time in the day to prepare food for their child in addition to other daily tasks users felt that they had to juggle.

"Baby has started refusing everything! Doesn't want to eat. I have tried offering purée on a spoon - after two spoons she keeps moving her head to the side and won't take any more, and baby led which just gets chucked on the floor. I'm finding it such hard work! She is eight months."

6.4.1.2 Subtheme: Guilt

The guilt subtheme reflects the wrongdoing that users felt during the weaning phase. This related to feeling guilty about the types of food they offered to their child, the guilt felt due to experiencing frustration when their child did not eat, and the guilt users felt for feeling like they were 'doing it [weaning] all wrong':

"My 9-month-old loves his food, once I started weaning him at 6 months he was always very keen to eat most solids and loves to eat… However, my diet is awful… My lunch is usually just a packet of crisps. I am trying to work through this issue, but I'm struggling…My main concern is that I'm letting my child down. I hate cooking so much and I don't know how to cook many things due to never having any interest in it...and can't even bring myself to cook things for him…But I don't even know where to start… Please try not to judge or mock. I am trying to change."

6.4.1.3 Subtheme: Anxiety

Fear was reflected in the users concern they had around their child's potential to choke on food during the weaning phase, particularly when introducing their child to new foods such as grapes. Words such as 'nervous,' 'worried,' 'scared,' and 'anxious' were used in posts by users.

"Just started blw [baby-led weaning] *with my 6mo* [month-old]. *She's doing great, me not so much! Despite 5 years of yearly infant first aid training I'm a nervous wreck that she will choke. She's gagged a few times and brought the food out and I know they're meant to. My main issue is with the size of the food. I'm fine with toast or sweet potato finger sizes. But what about fruit like cherries or hard veggies like peppers or cucumber? What size would I cut these? What is the size to avoid- what is deemed too small or too big and a choking risk size? Thanks, from a paranoid ftm* [full-time mum]*!"*

6.4.2 Theme 2: Social support

The second theme identified from the data relates to the social support users sought in their posts. The theme contains four subthemes: in need of emotional support, should I be worried? looking for advice and techniques, and previous experience. Users sought support that was informational, emotional, and instrumental, with regards to their child feeding interactions and weaning. Some posts were asking whether they should be concerned or worried about their child's eating behaviours during the weaning stage and/or weight and sought reassurance from others.

6.4.2.1 Subtheme: In need of emotional support

Users posted frequently to seek emotional support from other users with similar experiences. Most often they were seeking support because their child was refusing food, or they thought their child was not eating enough food.

"Please help, I'm at my wits' end. We have been trying to wean DD since she was 6 months old. We've tried everything. Everything…Anyway, at her paediatric appointment last week, we were told enough is enough. Take away the formula completely and have finger foods out all of the time so she can help herself. The thinking is, if she's hungry, she'll eat. Except, she won't. We're now on day 5, and apart from a bottle of cow's milk in the morning, and again in the evening (which we were told to give her), she doesn't have anything. No food or liquid of any description between about 7 am - 6 pm. She refuses everything. How long can we keep this up? Will she eventually give in? It seems so wrong. My smiley, happy, chatty little girl is now sad,

lethargic and, at times, completely inconsolable. It's breaking my heart. Please help."

6.4.2.2 Subtheme: Should I be worried?
Some users wanted to know whether their child's behaviour is 'normal' thereby normalising their current experience of weaning their child and child feeding interactions.

> *"DS* [darling son] *is 8 months and we've been BLW* [baby-led weaning] *since 6 months. He's doing really well in terms of exploring foods, tasting them, learning to chew, hand-eye coordination etc BUT he still only actually eats/swallows very little. Eg usually just a couple of mouthfuls at each mealtime (currently doing breakfast and dinner)…It's hard not to get worried when friends who are doing more traditional weaning are raving about how much their babies are eating, but the main thing I'm worried about is whether he's getting enough nutrients esp. iron. Is this normal? When will he start eating more? How do I make sure he gets enough iron?!"*

Other posts grouped into this subtheme discussed information received by healthcare professionals and sought a second opinion from other parents/ carers to inform their feeding practices.

> *"So last week my HV* [health visitor] *said my son is over weight and I need to change his diet to make sure he doesn't gain any more…My HV says I should cut out the 3-4pm bottle. Which I have been trying to do for the last week but my son has been so upset without it so I have just been giving him it. I feel she was really hard on me, she kept saying "over weight babies struggle to crawl and have all sorts of health problems" she also ended our phone call with "remember I'll be weighing him when I see you next so I hope hes in a better place". But I googled how many calories an 8 month needs and most sources say between 750 - 900. Also the average weight of an 8 month old boy is apparently between 17 - 22lbs. So he's a little over but not much. So my question is, do you think she's right? Should I keeping trying to cut out that 4oz bottle?"*

6.4.2.3 Subtheme: Looking for advice/techniques

A proportion of users sought advice, practical strategies, and reassurance to aid the management of their child's eating behaviours, feeding schedules, mealtime routines and interactions during the weaning stage.

"So DS [darling son] *is 6 months. Started tasters of things around a month ago. Usually give him something mid morning before his second milk feed. The last few days I've started giving him more amounts mid morning since he was still wanting more after finishing what I had offered him. Am I even doing it right? Is it too early? Going too slow? I'm not even sure when I should be offering like a full meal or when to start offering a second meal. Also when and how do they start dropping milk feeds?... I suppose just want reassurance that we're doing ok as we've never done this before and just seems quite overwhelming with all the questions I have."*

Advice sought was sometimes as a follow up from a discussion with a healthcare professional, and was related to difficult child feeding interactions, particularly when users had different experiences when compared to their other children when they were at the weaning stage.

"...Our HV [health visitor] *is really pushing BLW* [baby-led weaning] *but it's just really not working for us, we've tried daily since he was 6m but it's just not happening, he vomits after about 3 bites/mouthfuls no matter what I give him at different textures but is fine with pouches (which we had to start using as he wasn't actually getting anything in) and even then he gets to a point where he starts gagging and he have to stop...But HV and GP seems to think I'm being an overdramatic mother when I mention it. They're making me feel like a bad mum, that I'm doing something wrong and maybe I am but something doesn't feel right with him. Do I carry on in the hopes he'll miraculously stop vomiting or do I stay on the pouches for now? Kinda feel like I'm not allowed to choose? Wwyd* [what would you do]*?"*

6.4.2.4 Subtheme: Previous experience

Posts falling into this sub-theme reflect users seeking normalisation by asking whether current experience is normal from other users, and/or whether other

users have experienced a similar situation. Posts in this subtheme often asked other users about whether their child was ready for weaning based on physical signs (e.g., sitting up, having hand-eye-mouth coordination), whether they should offer different types of foods to their child, experiences of baby-led weaning compared to spoon-fed weaning, and food refusal.

"My little one is on solids as well as his bottles. He has 7oz bottle every 4 hours. I have introduced breakfast (porridge) and evening meal (mashed sweet potato or carrot swede mash ect. Plus pudding. I tried him with jars for evening meal yesterday however he finished whole jar and then pudding and still reaching for more. He's large for his age (not over weight at all just tall and currently in size 9/12 clothes at 6 months. Should I introduce more solids earlier in the day or increase bottles I would really appreciate any advice from mums that have had same with there little ones."

"My DD [darling daughter] *is 16 weeks old & from she was 14 weeks I have been giving her a few little spoonfuls of puréed pouches of fruit etc (picture included) 2 friends of mines have said they started weaning around the same time as me but others have said I'll upset her tummy. She seems fine & enjoys it. Just looking some stories from other people? smile (by a 'few spoonfuls' I literally mean 5 or 6 very small spoonfuls)."*

6.4.3 Theme 3: Tackling perceived problems with child feeding interactions

The third theme comprises users' perceived problems faced when feeding their child. Posts often described more than one concern about the child's eating behaviours. The theme contains two subthemes: concern about food intake and perceived child picky/fussy eating/food refusal during the weaning stage. The majority of posts sought support and/or strategies for tackling perceived problems with providing food to their child.

6.4.3.1 Subtheme: Concern about food intake

Posts in this subtheme reflected users' concerns about their child's food intake. Sometimes this concern about food intake was connected to concerns about their child's lack of variety in their diet. Many posts discussing

concerns about children's lack of food intake, was irrespective of whether users perceived or received feedback by healthcare professionals that their child was on a healthy/typical development trajectory. Users also often expressed concerns over the appropriate food portions for their child's age, and there were mixed opinions over how cues of hunger and satiety were expressed by their child due to fluctuations in their child's appetite on a daily basis.

"We are currently weaning our 8 month old and I'm concerned she is not getting enough despite her thriving and is putting on weight…I have purchased some cow and gate jars (200g) but there is nothing on the jar or website to indicate portion size. Can anyone help with this as I'm concerned I'm not doing enough? Thanks in advance for your help."

Worry about their child's possible overconsumption of food was another area of concern for users. They often questioned whether they were overfeeding their child and if they should reduce the quantity of food offered.

"DC [darling child] *is 6 months old and is catching up so I appreciate he will eat more to appetite but I am genuinely feeling a bit confused by the amounts he's eating…He eats it all. He has a divided plate appropriate for his age and there is mess so he can't be eating so much, but should I cut things down?"*

"My DS [darling son] *has always been a bigger boy… He does occasionally push his bottle away part way through or stop taking solids when he's full so I know he does know if he's had enough but I'm concerned that I'm maybe offering him too much! I know all babies are different but can anyone tell me what their 7m old typically eats in a day - including portion size if possible!"*

6.4.3.2 Subtheme: Perceived fussy eating/food refusal

The majority of posts sought support for perceived child pickiness, fussy eating, and food refusal. Most posts were aware of the importance of providing their child with a balanced and varied diet, even if that was not

reflected in the users own diet or their partner's diet. Of the posts identified that were grouped into this subtheme, users frequently described the food they provided to their child, and the strategies used to present this food to their child. Perceptions of fussy eating and food refusal was frequently described as a distressing experience. Despite the challenges faced by users, and the bribes (such as watching TV) that users offered their child, there was an awareness of the impact of use of coercive FPPs on their child's eating behaviours.

"My baby is 7 months old and i have done traditional weaning for a month. I have tried to give him finger foods such as brocolli, cooked carrot sticks, banana, and toast. This has all led to projectile vomit!! Anything with a lunp or texture comes straigh back up!! I have started to add sweet potato mash into his jarred food and [brand] sachets whuch is t going so bad. Am i putting too much pressure on myself? I just dont want a fussy baby!!"

In some posts, users additionally disclosed their frustration with the advice provided by a healthcare professional when support was sought, and so turned to other users for advice.

"Someone stop me pulling my hair out. Gp couldn't give a hoot, can't get past the triage nurse who is determined the fairies will make him eat one day. Ds [darling son] *2yo* [year old] *has been a fussy eater for ages, we were down to less than 10 "safe" foods for a while, and none of them are particularly healthy but no one bothered as he was putting away a fair volume... He's tired, he can't sleep all night because he wakes up starving but will not eat anything else. He won't take his milk any more either, pretty sure it's due to nurses forcing it on him when he felt crap tbh* [to be honest]. *Apparently he'll magically eat normally sometime.. I don't believe it. What the hell do you do?... He's pretty much non verbal, so I can't ask him if he wants x or y as he literally won't answer or point or give any indication besides screaming and throwing himself about...Won't eat wet things, won't use cutlery, won't eat if there's something visible he doesn't like.. follow my drift..."*

6.5 Discussion

To the knowledge of the authors,' limited research is available that has explored information pertaining to the topics and concerns on FPPs and child feeding interactions that naturally occur on social media. Therefore, the study aimed to identify and understand discourse related to FPPs and child feeding interactions on Mumsnet (a popular parenting online platform). From original, initial posts submitted between January 2021 and December 2021 in the 'weaning' subforum, the study identified nine subthemes that were best represented by three overarching themes: expressing emotions, social support and perceived problems with child feeding (Table 17).

Table 17: Summary of theme, subthemes, and excerpts from example quotes

Theme/Subtheme	Example quote
Expressing emotions	
Struggling to cope	*"...I'm finding it such hard work! She is eight months"*
Guilt	*"...My main concern is that I'm letting my child down."*
Anxiety	*"...Despite 5 years of yearly infant first aid training I'm a nervous wreck that she will choke."*
Social support	
In need of emotional support	*"...It seems so wrong. My smiley, happy, chatty little girl is now sad, lethargic and, at times, completely inconsolable. It's breaking my heart. Please help."*
Should I be worried?	*"...The main thing I'm worried about is whether he's getting enough nutrients esp. iron. Is this normal? When will he start eating more? How do I make sure he gets enough iron?!"*

Looking for advice/techniques	*"...Am I even doing it right? Is it too early? Going too slow?"*
Previous experience	*"...Should I introduce more solids earlier in the day or increase bottles I would really appreciate any advice from mums that have had same with there little ones."*
Perceived problems with child feeding interactions	
Concern about food intake	*"...I'm concerned she is not getting enough despite her thriving and is putting on weight..."*
Perceived child picky/fussy eating/food refusal	*"...Am i putting too much pressure on myself? I just dont want a fussy baby!!"*

The results show that Mumsnet users of the 'weaning' forum express uncertainty, fear, worry and guilt when navigating feeding interactions during the weaning phase. These posts were often in relation to users' managing the weaning process, and changes in their child's food and eating behaviours. Findings from an analysis of posts relating to fussy eating in a Reddit subforum (r/Toddlers) similarly reports that parents experience stress and frustration, and seek emotional support from other Reddit users (Fraser et al., 2021). In another qualitative study, parents report feelings of guilt and stress during mealtimes with their toddlers that was attributed to food pickiness (Rubio & Rigal, 2017), supporting the present study findings. Further, although the results cannot be directly compared, parents of Thai nationality have also been found to express stress and anxiety related to their child feeding interactions on Facebook groups (Supthanasup et al., 2021), partially supporting the results identified here. This finding is of potential importance since concerns or anxiety related to children's food intake and eating behaviours is linked to increased use of coercive FPPs (e.g., Harris et al., 2018, Haycraft, 2020).

The findings provide additional insight into the types of support sought by users and highlight how online forums facilitate the sharing of emotions,

social support, and offering solutions to users' perceived problems with their child feeding interactions. Three types of support were identified: emotional support, 'should I be worried?' and practical advice. The present findings revealed that users' sought reassurance from others about their child's development, advice from the experiences of other users,' and practical strategies. Similar types of support sought have been identified in previous research looking at discussions on Reddit. One study found that users most frequently sought practical advice to manage their child's fussy eating (Fraser et al., 2021). Another study looking at Facebook groups found that users seek informational and emotional support related to child feeding interactions (Supthanasup et al., 2021). A possible explanation of such findings could be that parents struggle to identify examples of possible and tailored solutions to their problems with their feeding interactions that suit their family circumstances and needs, however such online communities present a plethora of perspectives that may help users find solutions that resonate with them. Another plausible explanation is presence of low parental self-efficacy and confidence in ability to overcome perceived issues with child-feeding interactions, hence support seeking from such sources with immediacy and convenience. Taken together, the present results and results from previous studies indicate a need for knowledge on an array of feeding-related topics during the weaning stage (e.g., Heller et al., 2019).

Interestingly, the results also show that users seek additional information following discussions with healthcare professionals. This has also been identified as a motivation to seek information on social media by parents in a recent systematic review (Frey et al., 2022). Posts indicate that although users seek support from healthcare professionals (HCPs), however this support can be perceived as unsatisfactory and inconsistent among HCPs. This has an important implication on intervention and tool development. Whether parents can benefit from more regular and/or meaningful support from HCPs during the weaning stage warrants further exploration. HCPs are an important source of evidence-based information for parents regarding their child's health, especially in the first years of a child's life (Newby et al., 2015). However,

after the child's first year of life, regular contact with health care professionals becomes less frequent (Carruth & Skinner, 2001). Research reports that parents are more willing to trust the advice of other parents related to deciding when and how to introduce solid foods (Walsh et al., 2015a). Furthermore, after the first year of life, infants begin to develop eating habits as they transition to eating solid foods, feeding themselves independently and choosing what they eat. Therefore, it is of importance that parents receive evidence-based information, and support for their child feeding interactions during this influential development period (Savage et al., 2007).

The third theme contained the largest allocation of posts, and predominantly discussed perceived problems with their child feeding interactions. The problems expressed were in relation to users' perceptions of their child's lack of food intake, potential for excessive food intake, fussy eating, or food refusal. Posts that were categorised into this subtheme frequently also fell into the 'expressing emotions' theme. Users expressed a need to be able to manage the behaviours exhibited by their child during meal or snack times. This group of results is similar to the results identified by Fraser et al. (2021) from users of the Reddit 'r/Toddlers' forum where users most frequently expressed concerns about fussy eating, food refusal, food intake and eating behaviours. It is possible that this is because social media is readily available to parents who may lack spare time, and therefore, seek a faster response to their concerns rather than wait for an appointment with an appropriate HCP, that such social media-based discussion platforms become a source of child-feeding related information. Platforms such as Mumsnet may also be particularly appealing because of the anonymous disclosure of information, and therefore feel encouraged to be explicit in their experiences and concerns (e.g., Ammari et al., 2018).

The current study focused on the original posts in the forum since this would be a first step to understand the topics and concerns raised in the weaning talk topic. It was clear across posts that users described their specific situations and experiences of their child feeding interactions, and that information

tailored to their situation was often required. A next step for a future study would be to explore the comments made to original posts to understand the extent to which users utilise the advice and support provided by other users, and whether this is evidence-based. Furthermore, it would be of interest to the food-parenting practice research field to understand whether specific FPPs are advocated when users respond to posts.

The present study is limited by the nature of the data analysed. The demographic information of users is not known. This is important as previous research reports differences in online information-seeking behaviours related to demographics (Dworkin et al., 2015). Past research also indicates that Mumsnet users are typically of older age, educated, and predominantly based in London and South-East England (Pedersen & Smithson, 2013, Pedersen & Smithson, 2010), although an update to this representation is needed. Second, efforts were made to exclude posts that were created by caregivers other than parents (e.g., childminders, grandparents), however, it is unknown how representative the posts analysed were of parents. Despite these limitations, strengths also lie in the very nature of the data collected. Unlike interview and focus group research methodologies, posts on social media are less likely to have bias from socially desirable discussions and generalised responses to questions on FPPs. Furthermore, the findings identified may not be necessarily captured from constructs included in traditional forms of data collection such as questionnaires. The anonymous nature of posts (use of alias identification) means that users can create posts containing concerns and issues they may not feel comfortable discussing with a professional or in a research study, adding to the ecological validity of the study. Finally, the use of such platforms allow access from an array of individuals demographically that traditional research methods may not always capture.

The current study adds to a limited but growing area of research presenting analyses of social media-based child feeding interaction discussions. No guidance currently exists on best practices to analyse data from social media; however, the current study may help to inform this in the future. The current

results provide evidence that parents access social media to seek information on various aspects for their child feeding interactions. These findings could be used to inform discussions with parents about their children of varied ages. Indeed, effective behavioural interventions are those that target capability (e.g., skills and knowledge) and motivation (e.g., intentions and goals) (Michie et al., 2011), and the results demonstrate that users seek skills and knowledge for their feeding interactions with their child. However, it should be acknowledged that the current results present abstract topics identified from one source of online data (Mumsnet), and further topics may be identified/revealed outside of the present study parameters (one year of posts) or from other online sources (Fraser et al., 2021, Sutter et al., 2021).

6.6 Conclusion

In conclusion, the study provides an initial snapshot of posts created by Mumsnet users in the 'weaning' subforum from a one-year period that have important implications for clinicians and public health practitioners working with parents. This snapshot is important since the findings identified in the current study may not be captured by traditional research methodologies such as questionnaires and/or interviews with parents due to the specific nature of users' posts. The study extends the existing literature as the results provide new insights into the topics and concerns online forum users may not feel able to articulate elsewhere, and addresses a need for further social media based research on FPPs (Doub et al., 2016).

Chapter 7: General Discussion

7.1 Chapter introduction

In this concluding chapter, the broad aim and research questions are presented accompanied by a discussion of the key research findings and contributions to the literature. The strengths and limitations of the research reported in this thesis are discussed, followed by suggestions for future research. The chapter closes with a summary of main conclusions.

7.2 Aims and research questions included in this thesis

This thesis had the broad aim to examine factors of importance regarding use of FPPs. Specific research questions to be investigated were:

RQ1   What are the differences between mothers with healthy weight and overweight/obesity with regards to their use of coercive FPPs? (Chapter 2; study 1)

RQ2   Do the FPPs experienced as a child differ between mothers with healthy weight and overweight/obesity? (Chapter 2; study 1)

RQ3   Do eating behaviours associated with FPPs differ between mothers with healthy weight and overweight/obesity? (Chapter 2; study 1)

RQ4   Are the ways in which mothers were provided food as a child, and their existing eating behaviours predictors of engagement in coercive FPPs? (Chapter 3; study 2)

RQ5   Is the presence of maternal mental health problems and self-efficacy for regulating food intake related to engagement in coercive FPPs among mothers with overweight/obesity? (Chapter 4; study 3)

Given the increasing influence that media platforms have on parenting in general, the following research questions arose:

RQ6   What is the content validity of claims made about FPPs in the news media? (Chapter 5; study 4)

RQ7   What topics related to FPPs are raised by users of a parenting-focused social media platform? (Chapter 6; study 5)

7.3 Summary of key findings and contributions to the literature

The findings reported in this thesis has contributed to the literature in several ways (Figure 15). The systematic literature review (chapter 1) which directed the initial studies conducted in this thesis, was the first time to review the published evidence focusing on relationships between parental BMI and FPPs. This was important to do since there are clear links between parent and child obesity. The systematic review identified that several FPPs did not differ according to parental weight status (child involvement, praise, use of food to control negative emotions, use of food-based threats and bribes, pressure, restriction, meal and snack routines, monitoring, and rules and limits), and there was inconclusive evidence with respect to differences in parental control, encouragement and the use of unstructured FPPs among parents with healthy weight compared to those with overweight/obesity. However, due to methodological flaws across studies (i.e., heterogeneous measurement of FPPs and small sample sizes), it was important to replicate and extend research with improved methodological quality.

Following the findings of the systematic review, the first study (chapter 2; RQ 1 - 3) presented in this thesis replicated and extended previous research to compare mothers with healthy weight and overweight/obesity with regards to their childhood experiences of FPPs, their current eating behaviours and current use of FPPs with their own child. The study found that mothers with overweight/obesity experienced significantly more coercive control FPPs as a child themselves; and reported significantly higher current eating disorder psychopathology when compared to mothers with healthy weight. However, compared to mothers with healthy weight, mothers with overweight/obesity were no more likely to engage in coercive control FPPs with their children. It was also found that several significant associations existed between mothers' FPP experiences as a child, existing eating psychopathology, and current use

of FPPs with their child. This was the first time that such a spectrum of information from mothers has been examined in relation to BMI status.

The findings from the first study (chapter 2), informed the second study (chapter 3; RQ 4) which aimed to obtain a deeper (cross-sectional) understanding of the relationship between mothers' own childhood experiences of FPPs, mothers' current eating behaviours and use of coercive FPPs with their own child. Quantitative analyses utilising a large sample (N = 907) showed that mothers' childhood experiences of FPPs and their current eating behaviours were significant unique predictors of mothers' engagement in coercive FPPs with their own child. It was also identified that that the relationship between mothers' childhood experiences of FPPs and current use of coercive FPPs with their own child were partially mediated by mothers' eating behaviours. This was the first study to focus on the relationship of between mothers' childhood experiences of FPPs and eating behaviours on use of broader coercive FPPs with their own child.

Next, given the impact that mental health symptoms have on the use of FPPs, the bidirectional nature between obesity and mental health, and difficulty with food intake self-regulation among individuals with overweight and obesity, the third study (chapter 4; RQ 5) sought to examine the potential relationship between maternal mental health symptoms, food intake self-efficacy, and the use of coercive FPPs among mothers with overweight/obesity. The study identified that maternal symptoms of anxiety and depression were associated with greater use of coercive FPPs. The study also identified that low maternal self-efficacy for regulating food intake was associated with greater use of coercive FPPs. However, regression models revealed that maternal food intake self-efficacy was found to be a significant predictor of greater use of coercive FPPs, and maternal anxiety was found to only be a significant predictor of the use of food as a reward with their child. This was the first time that a study had explored mental health symptoms and food intake self-efficacy together.

It was also important to understand how mothers might be informed about their FPPs from an environmental perspective. This led to an examination of the content validity of claims made about FPPs in news media (chapter 5; RQ 6). A qualitative analysis of the content validity of claims made in the news media about FPPs showed that news articles often lacked detail and information to explain to readers why and how the use of certain FPPs could have a lasting impact on children's health outcomes. This was an important study to conduct given the influence that the news media in shaping parents' decisions. This was the first time FPP-related news media articles had been analysed in this way.

The final study in this thesis explored and identified the topics of concern about child feeding interactions from users of a popular UK-based parenting platform (Mumsnet) (chapter 6; RQ 7). Based on a 1-year period, the study found that users' posts could be grouped into three themes (expression emotions, social support and tackling perceived problems with child feeding interactions). This was an important area to examine as exploratory studies using unsolicited data on FPP discussions among parents online are lacking. This was the first time that an overview of discussions around child feeding interactions and FPPs have been examined in this way outside of a qualitative interview setting.

Figure 15: Visual representation of the areas of influences on food parenting practices examined in this thesis (solid lines denote examination of a direct influence (cross-sectional) on FPPs; dotted lines denote examination of an indirect influence (cross-sectional) on FPPs).
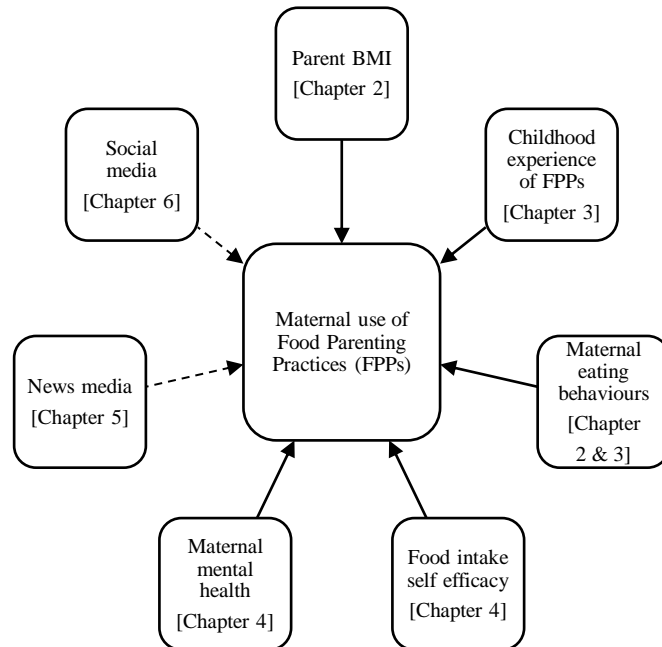
7.4 Why are the research findings important?

FPPs and eating behaviours are important because parents play a significant role in shaping their children's eating habits and attitudes towards food (Vaughn et al., 2016). Parents are the gatekeepers of food for young children, and the FPPs they use can impact their child's weight and long-term health outcomes. Given the alarming increase in prevalence of adult- and child-obesity (WHO, 2021), and that a child's weight status is associated with their parents' (NHS, 2020) it was important to research the modifiable (behavioural) factors that contribute to this complex disease.

The research findings reported in this thesis report that mothers' use of coercive FPPs are influenced by their childhood experience of FPPs and their existing eating behaviours. The use of coercive FPPs can also be affected by an increased maternal weight status, symptoms of anxiety and depression, and low food-intake self-efficacy. Certain FPPs used by parents may also be exacerbated and reinforced by social media and news media platforms. These findings are important because by understanding the factors that influence

parental FPPs and in turn the development of overweight and obesity, researchers and health professionals can develop evidence-based, targeted interventions to support parents adopt healthier attitudes towards food and more structure- and autonomy-based feeding practices to promote healthy eating habits in their children. This could include understanding how their own attitudes towards food may influence their FPPs and their children's eating behaviours, education on healthy food choices, and FPPs that support children's natural hunger and fullness cues. By empowering parents with the knowledge and skills to provide a healthy food environment for their children, the risks of overweight and obesity may be reduced and improve overall health outcomes in the long-term.

7.5 Strengths and limitations

The research reported in this thesis has several strengths. First, the thesis focused on influential factors on the use of FPPs, where a considerable amount of previous research in the FPP research field has focused on the outcomes of the use of FPPs on children's eating behaviours and weight. Second, the thesis benefits from use of mixed methodologies that combined cross-sectional quantitative (chapter 2 – 4) and qualitative research (chapter 5 and 6). The use of cross-sectional designs allowed for a holistic assessment of maternal factors such as childhood experience of FPPs, eating behaviours and psychopathology, mental health, and food intake self-efficacy. Moreover, the large sample sizes recruited in these studies provided sufficient statistical power. The sample in the quantitative studies also included a proportion of mothers with obesity that were recruited from a clinical weight management service in addition to mothers with obesity from community settings. This resulted in a broader range of BMIs and eating and feeding related behaviours and cognitions. The use of qualitative methods was essential for understanding the extent to which claims in the news media are supported by peer-reviewed, scientific research and for capturing a broad range of discussions that take place on social media. Third, with regards to methodological strengths, all relevant studies employed reliable self-report measures that have been previously used and validated with parents. The

inclusion of the CFPQ (Musher-Eizenman & Holub, 2007) allowed for a comprehensive assessment of a range of coercive FPPs that included the motives/nuances of restriction (i.e., for health reasons and for weight control)

Although the limitations of each study are discussed in their respective chapters, it is important to acknowledge the broader limitations of the research in this thesis. The studies reported in this thesis were cross-sectional, and therefore causal relationships cannot be derived from the findings reported. However, it was important to conduct the research reported in order to generate a foundation for future longitudinal research.

It is possible that the self-report nature of the data collected does not align with observed FPPs (Loth et al., 2022). The CFPQ does not require mothers to respond to questions based on a specific recall period. Therefore, responses are based on mothers' generalisations of their usual practices. As a consequence of this, mothers' may have reflected on their practices as more favourable (i.e., more frequent engagement in structure and autonomy support FPPs) rather than a true snapshot of the FPPs used. Recent research investigating real-time FPPs using ecological momentary assessment show that use of FPPs are dynamic, and are dependent on the context, with parents using variety of FPPs on a daily basis (Loth et al., 2022). This limitation also applies to mothers' responses on the rCFPQ when responding to the FPPs they experienced as a child.

The multiple regression models examined in chapter 3 and 4 were designed to explain as much variance as possible. However, it is possible that unmeasured confounders were not included in the models. For example, child BMI was not included due to missing data. Other reasons have been identified as motivations for parental engagement in coercive FPPs that were outside the scope of the current thesis. Previous research shows that parental use of restriction or pressure to eat FPPs are in response to their perceptions of their child's weight. The presence of an unmeasured or confounding variable may have biased study results away or towards to null hypotheses.

Although efforts were made to recruit a diverse sample of mothers, mothers' who participated were mostly white and educated to at least undergraduate degree level, limiting the applicability and generalisation of findings to minority ethnicities, and mothers with less education. Another limitation is lack of control of child age in terms of participant recruitment and statistical analyses. The decision to include children of a wide age range (2 – 16 years) was to encourage large participation of mothers needed for sufficient statistical power. Finally, in chapter 2, 3, and 4, data was analysed based on self-reported height and weight which may have been inaccurately categorised as a healthy weight, overweight or obese BMI.

7.6 Reflecting on the recruitment of a clinical sample of mothers

This subsection is a reflective section that describes the author's experience of recruiting mothers from a clinical setting.

The research planned at the start of this PhD research was to examine and explore FPPs among mothers that were seeking clinical support in relation to their weight. However, a number of difficulties were encountered that resulted in the scope of the research changing substantially. The difficulties/barriers are reported and discussed below:

1. Time: Although the process to obtain NHS ethical approval took place over a three-month period. Following this approval, several further stages to begin data collection on-site were required that involved the local research and development departments at sites (e.g., obtaining a site-based 'research passport,' getting relevant IT access, attending training). Processes also varied by clinical site, resulting in many months passing before data collection could start. Substantial time was also needed to build rapport with staff members across sites before and during participant recruitment.

2. Reliance on one researcher: Although much effort was spent distributing information about the study and explaining to staff members working within the weight management services who would be eligible to participate, ultimately, it was up to the individual

researcher to actively discuss the study and recruit mothers to the study.

3. Limited opportunities to recruit: The clinics where patients attended the weight management services generally occurred once a week that lasted approximately half a day. Due to restrictions in IT access as a researcher meant that patients' details (sex and date of birth) could not be known in advance of the clinic taking place. Often this meant attending clinics with no successful recruitment of mothers. At other sites, the patient journey from checking in to their appointment meant they were in other areas of the hospital (for instance to have their weight measured or to have a blood test), that made identification of possible mothers difficult.

4. Ethical concerns: Potential participants from certain religious/cultural backgrounds meant that they do not communicate directly with HCPs, and this was observed to be conducted by the person they attended their appointment with (i.e., spouse). Therefore, when approaching the potential participant to discuss the research study, it was troublesome to understand who (mother or spouse, for example) was being recruited to the study.

5. Weight trajectory: One of the access criteria to the weight management services is having a BMI of at least 35. Often patients that were approached were mothers, however their children were older than 16. Anecdotally, staff members explained that by the time that patients require or seek medical intervention for their weight, they are typically of older age. Furthermore, women of childbearing age accessing such services are attending such clinical services to aid pregnancy conception.

Eventually, it was decided (in collaboration with the PhD supervision team) that recruitment should end at clinical sites. This resulted in data from a small proportion of mothers being included in the quantitative studies (n = 27) that took place over a one-year period. Although recruitment was planned across three clinical sites in the West Midlands, this sample of mothers were

recruited from one clinical site. Such considerations are important to consider upon embarking on the recruitment of such a sample from a clinical setting.

7.7 Conclusions

The research in this thesis makes a valuable contribution to the FPP research field by identifying new information about the influences on maternal use of coercive FPPs. The study findings indicate that maternal use of coercive FPPs is associated with mothers' childhood experience of coercive FPPs, engagement in restrained and external eating behaviours, and less confidence in own ability to resist foods in different situations. The findings also suggest that maternal BMI does not affect use of coercive FPPs. Study findings also indicate that the news media and social media discussions may also have an influential role in the promotion of use of certain FPPs. The research reported in this thesis presents some important findings in addition to the use of novel data (news media articles and online discussions) and analytical approaches for the FPP research field. Overall, parents should be encouraged to develop skills on the use of FPPs that use structure and promote child autonomy in conjunction with developing awareness of their own experiences of being fed as a child, and current eating behaviours. While the research included in this thesis provides valuable information for healthcare practitioners, it also highlights the need for future research and practical implications that is discussed below.

7.7.1 What could the FPP research field do next? Suggestions for future research

The research conducted in this thesis has generated a foundation for future research. As a result of this, there are several directions for future research:

1. Replicate the quantitative studies (chapter 2 to 4) to include different samples of mothers, diverse ethnic and education levels, and parents that are seeking clinical support for their own and/or child's weight. Moreover, research reports differences in use of FPPs between mothers and fathers (De-Jongh González et al., 2021, Holub & Nelson, 2022, Vollmer, 2021), therefore study replication should also include a sample of fathers.

2. In chapters 2 to 4, it was identified that mothers' childhood experience of FPPs, eating behaviours, and food intake self-efficacy were related to use of coercive FPPs with their own child. Future research could explore mothers' awareness and modification to maternal eating behaviours through intervention and examine this in a longitudinal study.

3. In chapter 5, it was found that most news media articles related to FPPs were rarely written based on scientific research evidence. It would be of interest to understand in an experimental study the extent to which such articles inform parents' FPPs and find such information trustworthy.

4. Relatedly, it would also be of interest to understand the extent to which parents are informed from discussions of FPPs on social media find such information trustworthy.

7.7.2 Implications

The findings reported in this thesis have important practical implications which are discussed below.

1. Dieticians, psychologists, and other health care practitioners working with parents in clinical and community settings would benefit from a greater awareness of the role that areas investigated in this thesis have

on FPPs (chapter 2 to 4). An increased awareness could aid practitioners in engaging with parents about the best FPPs to create a healthy home food environment that will support their child's healthy development and maintenance of a healthy relationship with food and eating.

2. It is important that health care practitioners understand the types of FPPs that are commonly used by parents, as well as the correlates for use of these FPPs (chapter 2 to 4). The findings in chapter 3, provide preliminary evidence that mothers' experiences of FPPs as a child and their current eating behaviours affect use of coercive FPPs with their own child. It would be helpful for practitioners discuss with parents their own childhood experiences and current eating behaviours before intervening.

3. Parents are more likely to employ coercive FPPs when they have concerns with their own eating or weight concerns (i.e., low food intake self-efficacy (chapter 4) (Costanzo & Woody, 1985). Therefore, where health care practitioners might identify a risk of parental use of coercive FPPs, it may be particularly important to focus on recommending the avoidance of coercive FPPs, and guide parents with alternative ways to guide their child's decisions about food and eating.

4. It is of value for health care practitioners to understand where and how parents gain and use information from sources outside of recommended advice and guidance (chapter 5 and 6). It is also essential for health care professionals to keep up-to-date and informed about what is reported on media platforms to aid discussions with parents.

5. Upon future open discussion and dissemination of research with news media outlets it is important the readership is considered (chapter 5). The research community could educate and work with journalists to provide appropriate and positive messages.

6. Relatedly, no guidance currently exists on best practices to analyse data from social media platforms, however the approach used in chapter 6 may help to inform this in the future.

References

ABBASI, A., JUSZCZYK, D., VAN JAARSVELD, C. H. M. & GULLIFORD, M. C. 2017. Body Mass Index and Incident Type 1 and Type 2 Diabetes in Children and Young Adults: A Retrospective Cohort Study. *Journal of the Endocrine Society,* 1**,** 524-537.

ABEL, K. M., HOPE, H., SWIFT, E., PARISI, R., ASHCROFT, D. M., KOSIDOU, K., OSAM, C. S., DALMAN, C. & PIERCE, M. 2019. Prevalence of maternal mental illness among children and adolescents in the UK between 2005 and 2017: a national retrospective cohort analysis. *Lancet Public Health,* 4**,** e291-e300.

ALBANESE, A. M., RUSSO, G. R. & GELLER, P. A. 2019. The role of parental self-efficacy in parent and child well-being: A systematic review of associated outcomes. *Child: Care, Health and Development,* 45**,** 333-363.

ALLEN, K. L., BYRNE, S. M., LA PUMA, M., MCLEAN, N. & DAVIS, E. A. 2008. The onset and course of binge eating in 8- to 13-year-old healthy weight, overweight and obese children. *Eating Behaviors,* 9**,** 438-446.

ALTMAN, M., CAHILL HOLLAND, J., LUNDEEN, D., KOLKO, R. P., STEIN, R. I., SAELENS, B. E., WELCH, R. R., PERRI, M. G., SCHECHTMAN, K. B., EPSTEIN, L. H. & WILFLEY, D. E. 2015. Reduction in Food Away from Home Is Associated with Improved Child Relative Weight and Body Composition Outcomes and This Relation Is Mediated by Changes in Diet Quality. *Journal of the Academy of Nutrition and Dietetics,* 115**,** 1400-1407.

AMBROSE, S. E., APPENZELLER, M., MAI, A. & DESJARDIN, J. L. 2020. Beliefs and self-efficacy of parents of young children with hearing loss. *Journal of Early Hearing Detection and Intervention,* 5**,** 73.

AMMARI, T., SCHOENEBECK, S. & ROMERO, D. M. 2018. Pseudonymous Parents: Comparing Parenting Roles and Identities on the Mommit and Daddit Subreddits. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems.* Montreal QC, Canada: Association for Computing Machinery.

ANDERSON, E. S., WINETT, R. A. & WOJCIK, J. R. 2007. Self-regulation, self-efficacy, outcome expectations, and social support: Social cognitive theory and nutrition behavior. *Annals of Behavioral Medicine,* 34**,** 304-312.

ANDERSON, S. E., SACKER, A., WHITAKER, R. C. & KELLY, Y. 2017. Self-regulation and household routines at age three and obesity at age eleven: longitudinal analysis of the UK Millennium Cohort Study. *International Journal of Obesity,* 41**,** 1459-1466.

ANNESI, J. J. & GORJALA, S. 2010. Relations of self-regulation and self-efficacy for exercise and eating and BMI change: A field investigation. *BioPsychoSocial Medicine,* 4**,** 10.

ANTHONY, H., TABAK, R., MORSHED, A. B., SCHWARZ, C., PHAD, A. & HAIRE-JOSHU, D. 2020. Awareness and accuracy of height and weight among mothers and their preschool-aged children. *Public health,* 182**,** 151-154.

ANZMAN, S. L. & BIRCH, L. L. 2009. Low inhibitory control and restrictive feeding practices predict weight outcomes. *The Journal of pediatrics,* 155**,** 651-656.

ANZMAN, S. L., ROLLINS, B. Y. & BIRCH, L. L. 2010. Parental influence on children's early eating environments and obesity risk: implications for prevention. *International Journal of Obesity,* 34**,** 1116-24.

APPLETON, K. M., HEMINGWAY, A., RAJSKA, J. & HARTWELL, H. 2018. Repeated exposure and conditioning strategies for increasing vegetable liking and intake: systematic review and meta-analyses of the published literature. *The American Journal of Clinical Nutrition,* 108**,** 842-856.

ARAÚJO, C. S., DE FARIAS COSTA, P. R., DE OLIVEIRA QUEIROZ, V. A., DE SANTANA, M. L. P., MIRANDA, E. P., PITANGUEIRA, J. C. D. & DE ASSIS, A. M. 2019. Age of introduction of complementary feeding and overweight in adolescence and adulthood: A systematic review. *Maternal & Child Nutrition,* 15**,** e12796.

ASIODU, I. V., WATERS, C. M., DAILEY, D. E., LEE, K. A. & LYNDON, A. 2015. Breastfeeding and Use of Social Media Among First-Time African American Mothers. *Journal of Obstetric, Gynecologic & Neonatal Nursing,* 44**,** 268-278.

ASKELSON, N. M., CAMPO, S., MASTIN, T. & SLONSKE, M. 2009. The Missing Role of Parents: A Content Analysis of Newspaper Coverage of Parenting Practices and Communication Strategies for Addressing Binge Drinking. *Communication Research Reports,* 26**,** 50-61.

BALANI, R., HERRINGTON, H., BRYANT, E., LUCAS, C. & KIM, S. C. 2019. Nutrition knowledge, attitudes, and self-regulation as predictors of overweight and obesity. *Journal of the American Association of Nurse Practitioners,* 31.

BALANTEKIN, K. N., GRAMMER, A. C., FITZSIMMONS-CRAFT, E. E., EICHEN, D. E., GRAHAM, A. K., MONTERUBIO, G. E., FIREBAUGH, M.-L., KARAM, A. M., SADEH-SHARVIT, S., GOEL, N. J., FLATT, R. E., TROCKEL, M. T., TAYLOR, C. B. & WILFLEY, D. E. 2021. Overweight and obesity are associated with increased eating disorder correlates and general psychopathology in university women with eating disorders. *Eating Behaviors,* 41**,** 101482.

BANDURA, A. 1982. Self-efficacy mechanism in human agency. *American psychologist,* 37**,** 122.

BARANOWSKI, T., CULLEN, K. W., NICKLAS, T., THOMPSON, D. & BARANOWSKI, J. 2003. Are Current Health Behavioral Change Models Helpful in Guiding Prevention of Weight Gain Efforts? *Obesity Research,* 11**,** 23S-43S.

BAUGHCUM, A. E., BURKLOW, K. A., DEEKS, C. M., POWERS, S. W. & WHITAKER, R. C. 1998. Maternal feeding practices and childhood obesity: a focus group study of low-income mothers. *Archives of Pediatrics and Adolescent Medicine,* 152**,** 1010-4.

BAUGHCUM, A. E., POWERS, S. W., JOHNSON, S. B., CHAMBERLIN, L. A., DEEKS, C. M., JAIN, A. & WHITAKER, R. C. 2001. Maternal feeding practices and beliefs and their relationships to overweight in early childhood. *Journal of Developmental and Behavioral Pediatrics,* 22**,** 391-408.

BECKERS, D., KARSSEN, L. T., VINK, J. M., BURK, W. J. & LARSEN, J. K. 2021. Food parenting practices and children's weight outcomes: A systematic review of prospective studies. *Appetite,* 158**,** 105010.

BENJAMINI, Y. & HOCHBERG, Y. 1995. Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing. *Journal of the Royal Statistical Society. Series B (Methodological),* 57**,** 289-300.

BENJAMINI, Y. & YEKUTIELI, D. 2005. False discovery rate–adjusted multiple confidence intervals for selected parameters. *Journal of the American Statistical Association,* 100**,** 71-81.

BENTON, P. M., SKOUTERIS, H. & HAYDEN, M. 2015. Does maternal psychopathology increase the risk of pre-schooler obesity? A systematic review. *Appetite,* 87**,** 259-282.

BERG, K. C., PETERSON, C. B., FRAZIER, P. & CROW, S. J. 2012. Psychometric evaluation of the eating disorder examination and eating disorder examination-questionnaire: A systematic review of the literature. *International Journal of Eating Disorders,* 45**,** 428-438.

BERGE, J. M., MEYER, C. S., LOTH, K., MACLEHOSE, R. & NEUMARK-SZTAINER, D. 2015a. Parent/Adolescent Weight Status Concordance and Parent Feeding Practices. *Pediatrics,* 136**,** e591-8.

BERGE, J. M., MILLER, J., WATTS, A., LARSON, N., LOTH, K. A. & NEUMARK-SZTAINER, D. 2018. Intergenerational transmission of family meal patterns from adolescence to parenthood: longitudinal associations with parents' dietary intake, weight-related behaviours and psychosocial well-being. *Public Health Nutrition,* 21**,** 299-308.

BERGE, J. M., TATE, A., TROFHOLZ, A., FERTIG, A. R., MINER, M., CROW, S. & NEUMARK-SZTAINER, D. 2017. Momentary

Parental Stress and Food-Related Parenting Practices. *Pediatrics,* 140**,** e20172295.

BERGE, J. M., WALL, M., HSUEH, T.-F., FULKERSON, J. A., LARSON, N. & NEUMARK-SZTAINER, D. 2015b. The Protective Role of Family Meals for Youth Obesity: 10-Year Longitudinal Associations. *The Journal of Pediatrics,* 166**,** 296-301.

BERGMEIER, H., PAXTON, S. J., MILGROM, J., ANDERSON, S. E., BAUR, L., HILL, B., LIM, S., GREEN, R. & SKOUTERIS, H. 2020. Early mother-child dyadic pathways to childhood obesity risk: A conceptual model. *Appetite,* 144**,** 104459.

BERGMEIER, H., SKOUTERIS, H. & HETHERINGTON, M. 2014a. Systematic research review of observational approaches used to evaluate mother-child mealtime interactions during preschool years. *The American Journal of Clinical Nutrition,* 101**,** 7-15.

BERGMEIER, H., SKOUTERIS, H., HORWOOD, S., HOOLEY, M. & RICHARDSON, B. 2014b. Associations between child temperament, maternal feeding practices and child body mass index during the preschool years: a systematic review of the literature. *Obesity Reviews,* 15**,** 9-18.

BIRBILIS, M., MOSCHONIS, G., MOUGIOS, V. & MANIOS, Y. 2013. Obesity in adolescence is associated with perinatal risk factors, parental BMI and sociodemographic characteristics. *European Journal of Clinical Nutrition,* 67**,** 115-21.

BIRCH, L. & DAVISON, K. 2001. Family Environmental Factors Influencing the Developing Behavioral Controls of Food Intake and Childhood Overweight. *Pediatric Clinics,* 48**,** 893-907.

BIRCH, L., SAVAGE, J. S. & VENTURA, A. 2007. Influences on the Development of Children's Eating Behaviours: From Infancy to Adolescence. *Canadian journal of dietetic practice and research : a publication of Dietitians of Canada,* 68**,** s1-s56.

BIRCH, L. L. & FISHER, J. O. 1998. Development of Eating Behaviors Among Children and Adolescents. *Pediatrics,* 101**,** 539-549.

BIRCH, L. L. & FISHER, J. O. 2000. Mothers' child-feeding practices influence daughters' eating and weight. *The American Journal of Clinical Nutrition,* 71**,** 1054-61.

BIRCH, L. L., FISHER, J. O. & DAVISON, K. K. 2003. Learning to overeat: maternal use of restrictive feeding practices promotes girls' eating in the absence of hunger. *The American Journal of Clinical Nutrition,* 78**,** 215-220.

BIRCH, L. L., FISHER, J. O., GRIMM-THOMAS, K., MARKEY, C. N., SAWYER, R. & JOHNSON, S. L. 2001. Confirmatory factor analysis of the Child Feeding Questionnaire: a measure of parental attitudes,

beliefs and practices about child feeding and obesity proneness. *Appetite,* 36**,** 201-210.

BIRCH, L. L., ZIMMERMAN, S. I. & HIND, H. 1980. The Influence of Social-Affective Context on the Formation of Children's Food Preferences. *Child Development,* 51**,** 856-861.

BIRO, F. M. & WIEN, M. 2010. Childhood obesity and adult morbidities. *The American Journal of Clinical Nutrition,* 91**,** 1499S-1505S.

BJELLAND, I., DAHL, A. A., HAUG, T. T. & NECKELMANN, D. 2002. The validity of the Hospital Anxiety and Depression Scale: an updated literature review. *Journal of psychosomatic research,* 52**,** 69-77.

BJØRKLUND, O., WICHSTRØM, L., LLEWELLYN, C. H. & STEINSBEKK, S. 2019. Emotional Over- and Undereating in Children: A Longitudinal Analysis of Child and Contextual Predictors. *Child Development,* 90**,** e803-e818.

BLAINE, R. E., KACHURAK, A., DAVISON, K. K., KLABUNDE, R. & FISHER, J. O. 2017. Food parenting and child snacking: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity,* 14**,** 146.

BLISSETT, J. 2011. Relationships between parenting style, feeding style and feeding practices and fruit and vegetable consumption in early childhood. *Appetite,* 57**,** 826-31.

BLISSETT, J. 2018. Chapter 3 - Effects of Modeling on Children's Eating Behavior. *In:* LUMENG, J. C. & FISHER, J. O. (eds.) *Pediatric Food Preferences and Eating Behaviors.* Academic Press.

BLISSETT, J. & BENNETT, C. 2013. Cultural differences in parental feeding practices and children's eating behaviours and their relationships with child BMI: a comparison of Black Afro-Caribbean, White British and White German samples. *European Journal of Clinical Nutrition,* 67**,** 180-4.

BLISSETT, J. & HAYCRAFT, E. 2011. Parental eating disorder symptoms and observations of mealtime interactions with children. *Journal of Psychosomatic Research,* 70**,** 368-371.

BLISSETT, J., HAYCRAFT, E. & FARROW, C. 2010. Inducing preschool children's emotional eating: relations with parental feeding practices. *American Journal of Clinical Nutrition,* 92**,** 359-65.

BLISSETT, J., MEYER, C. & HAYCRAFT, E. 2006. Maternal and paternal controlling feeding practices with male and female children. *Appetite,* 47**,** 212-219.

BLISSETT, J., MEYER, C. & HAYCRAFT, E. 2007. Maternal mental health and child feeding problems in a non-clinical group. *Eating Behaviors,* 8**,** 311-318.

BOLES, R. E., JOHNSON, S. L., BURDELL, A., DAVIES, P. L., GAVIN, W. J. & BELLOWS, L. L. 2019. Home food availability and child

intake among rural families identified to be at-risk for health disparities. *Appetite,* 134**,** 135-141.

BOOTS, S. B., TIGGEMANN, M. & CORSINI, N. 2018. Eating in the absence of hunger in young children: The role of maternal feeding strategies. *Appetite,* 130**,** 45-49.

BOOTS, S. B., TIGGEMANN, M. & CORSINI, N. 2019. Pumpkin is "yucky"!: A prospective study of overt and covert restriction in the development of young children's food preferences. *Appetite,* 135**,** 54-60.

BOSWELL, N., BYRNE, R. & DAVIES, P. S. 2018a. Eating behavior traits associated with demographic variables and implications for obesity outcomes in early childhood. *Appetite,* 120**,** 482-490.

BOSWELL, N., BYRNE, R. & DAVIES, P. S. W. 2018b. Aetiology of eating behaviours: A possible mechanism to understand obesity development in early childhood. *Neuroscience & Biobehavioral Reviews,* 95**,** 438-448.

BRADEN, A., MUSHER-EIZENMAN, D., WATFORD, T. & EMLEY, E. 2018. Eating when depressed, anxious, bored, or happy: Are emotional eating types associated with unique psychological and physical health correlates? *Appetite,* 125**,** 410-417.

BRANEN, L. & FLETCHER, J. 1999. Comparison of College Students' Current Eating Habits and Recollections of Their Childhood Food Practices. *Journal of Nutrition Education,* 31**,** 304-310.

BRINK, P. J., FERGUSON, K. & SHARMA, A. 1999. Childhood memories about food: the Successful Dieters Project. *Journal of Child and Adolescent Psychiatric Nursing,* 12**,** 17-25.

BROWN, N., GALLAGHER, R., FOWLER, C. & WALES, S. 2014. Asthma management self-efficacy in parents of primary school-age children. *Journal of Child Health Care,* 18**,** 133-144.

BROWN, R. & OGDEN, J. 2004. Children's eating attitudes and behaviour: a study of the modelling and control theories of parental influence. *Health Education Research,* 19**,** 261-271.

BRYAN, M. A., EVANS, Y., MORISHITA, C., MIDAMBA, N. & MORENO, M. 2020. Parental Perceptions of the Internet and Social Media as a Source of Pediatric Health Information. *Academic Pediatrics,* 20**,** 31-38.

BURNETT, A. J., LACY, K. E., RUSSELL, C. G., SPENCE, A. C., WORSLEY, A. & LAMB, K. E. 2022. Groups of mothers based on feeding practices and their associations with dietary quality of pre-school children: A latent profile analysis. *Appetite,* 168**,** 105754.

BURNETT, A. J., LAMB, K. E., SPENCE, A. C., LACY, K. E. & WORSLEY, A. 2021. Associations between feeding practices and

child dietary quality, and the moderating effect of child eating behaviours on these associations. *Eating Behaviors,* 43**,** 101569.

BUTRYN, M. L., FORMAN, E. M., LOWE, M. R., GORIN, A. A., ZHANG, F. & SCHAUMBERG, K. 2017. Efficacy of environmental and acceptance-based enhancements to behavioral weight loss treatment: The ENACT trial. *Obesity,* 25**,** 866-872.

CARNELL, S. & WARDLE, J. 2008. Appetite and adiposity in children: evidence for a behavioral susceptibility theory of obesity. *The American Journal of Clinical Nutrition,* 88**,** 22-29.

CARPER, J. L., ORLET FISHER, J. & BIRCH, L. L. 2000. Young girls' emerging dietary restraint and disinhibition are related to parental control in child feeding. *Appetite,* 35**,** 121-9.

CARRUTH, B. R. & SKINNER, J. D. 2001. Mothers' Sources of Information About Feeding Their Children Ages 2 Months to 54 Months. *Journal of Nutrition Education,* 33**,** 143-147.

CEBECI, A. N. & GUVEN, A. 2015. Does maternal obesity have an influence on feeding behavior of obese children? *Minerva Pediatrica,* 67**,** 481-7.

ČERNELIČ-BIZJAK, M. & GUINÉ, R. P. F. 2022. Predictors of binge eating: relevance of BMI, emotional eating and sensivity to environmental food cues. *Nutrition & Food Science,* 52**,** 171-180.

CHAPMAN, L., CARTWRIGHT-HATTON, S., THOMSON, A. & LESTER, K. 2021. Parental eating disorders: A systematic review of parenting attitudes, behaviours, and parent-child interactions. *Clinical Psychology Review***,** 102031.

CHEN, M. & LAWRIE, S. 2017. Newspaper depictions of mental and physical health. *BJPsych Bulletin,* 41**,** 308-313.

CIAO, A. C., LOTH, K. & NEUMARK-SZTAINER, D. 2014. Preventing eating disorder pathology: common and unique features of successful eating disorders prevention programs. *Current Psychiatry Reports,* 16**,** 453-453.

CLAPTON-CAPUTO, E., SWEET, L. & MULLER, A. 2021. A qualitative study of expectations and experiences of women using a social media support group when exclusively expressing breastmilk to feed their infant. *Women and Birth,* 34**,** 370-380.

CLARK, H. R., GOYDER, E., BISSELL, P., BLANK, L. & PETERS, J. 2007. How do parents' child-feeding behaviours influence child weight? Implications for childhood obesity policy. *J Public Health (Oxf),* 29**,** 132-41.

CLARK, M. M., ABRAMS, D. B., NIAURA, R. S., EATON, C. A. & ROSSI, J. S. 1991. Self-efficacy in weight management. *Journal of consulting and clinical psychology,* 59**,** 739.

COHEN, J. 2013. *Statistical power analysis for the behavioral sciences*, Academic Press.

CORSINI, N., SLATER, A., HARRISON, A., COOKE, L. & COX, D. N. 2013. Rewards can be used effectively with repeated exposure to increase liking of vegetables in 4–6-year-old children. *Public Health Nutrition,* 16**,** 942-951.

CORSINI, N., WILSON, C., KETTLER, L. & DANTHIIR, V. 2010. Development and preliminary validation of the Toddler Snack Food Feeding Questionnaire. *Appetite,* 54**,** 570-8.

COSTA, F. S., PINO, D. L. & FRIEDMAN, R. 2011. Caregivers' attitudes and practices: influence on childhood body weight. *Journal of Biosocial Science,* 43**,** 369-78.

COSTANZO, P. R. & WOODY, E. Z. 1985. Domain-Specific Parenting Styles and Their Impact on the Child's Development of Particular Deviance: The Example of Obesity Proneness. *Journal of Social and Clinical Psychology,* 3**,** 425-445.

CURNEY, E. & WILKINSON, K. 2016. Examination of the Information Mothers Receive About Children's Picky Eating Habits: A Mixed-Methods Study. *American Journal of Occupational Therapy,* 70**,** 7011510228p1-7011510228p1.

CURTIS, K., ATKINS, L. & BROWN, K. 2017. Big hearts, small hands: a focus group study exploring parental food portion behaviours. *BMC Public Health,* 17**,** 716.

DALLACKER, M., HERTWIG, R. & MATA, J. 2018. The frequency of family meals and nutritional health in children: a meta-analysis. *Obesity Reviews,* 19**,** 638-653.

DAMIANO, S. R., HART, L. M. & PAXTON, S. J. 2016. Correlates of parental feeding practices with pre-schoolers: Parental body image and eating knowledge, attitudes, and behaviours. *Appetite,* 101**,** 192-198.

DANIELS, L. A. 2019. Feeding practices and parenting: A pathway to child health and family happiness. *Annals of Nutrition and Metabolism,* 74**,** 29-42.

DANIELZIK, S., LANGNÄSE, K., MAST, M., SPETHMANN, C. & MÜLLER, M. J. 2002. Impact of parental BMI on the manifestation of overweight 5–7 year old children. *European Journal of Nutrition,* 41**,** 132-138.

DAVIES, M. 2017. *Corpus of News on the Web (NOW): 3+ billion words from 20 countries, updated every day.* [Online]. Available: https://www.english-corpora.org/now/ [Accessed 02 July 2019].

DAVISON, K. K. & BIRCH, L. L. 2001. Childhood overweight: a contextual model and recommendations for future research. *Obesity Reviews,* 2**,** 159-171.

DAVISON, K. K., HAINES, J., GARCIA, E. A., DOUGLAS, S. & MCBRIDE, B. 2020. Fathers' food parenting: A scoping review of the literature from 1990 to 2019. *Pediatric Obesity,* 15**,** e12654.

DAVISON, K. K., JURKOWSKI, J. M. & LAWSON, H. A. 2013. Reframing family-centred obesity prevention using the Family Ecological Model. *Public Health Nutrition,* 16**,** 1861-9.

DE-JONGH GONZÁLEZ, O., TUGAULT-LAFLEUR, C. N., O'CONNOR, T. M., HUGHES, S. O. & MÂSSE, L. C. 2021. Are fathers' and mothers' food parenting practices differentially associated with children's eating behaviors? *Appetite,* 166**,** 105434.

DE BRÚN, A., MCCARTHY, M., MCKENZIE, K. & MCGLOIN, A. 2015. Examining the Media Portrayal of Obesity Through the Lens of the Common Sense Model of Illness Representations. *Health Communication,* 30**,** 430-440.

DE LAUZON-GUILLAIN, B., MUSHER-EIZENMAN, D., LEPORC, E., HOLUB, S. & CHARLES, M. A. 2009. Parental feeding practices in the United States and in France: relationships with child's characteristics and parent's eating behavior. *Journal of the American Dietetic Association,* 109**,** 1064-9.

DE WIT, L., LUPPINO, F., VAN STRATEN, A., PENNINX, B., ZITMAN, F. & CUIJPERS, P. 2010. Depression and obesity: A meta-analysis of community-based studies. *Psychiatry Research,* 178**,** 230-235.

DEJESUS, J. M., GELMAN, S. A., VIECHNICKI, G. B., APPUGLIESE, D. P., MILLER, A. L., ROSENBLUM, K. L. & LUMENG, J. C. 2018. An investigation of maternal food intake and maternal food talk as predictors of child food intake. *Appetite,* 127**,** 356-363.

DERKS, I. P., TIEMEIER, H., SIJBRANDS, E. J., NICHOLSON, J. M., VOORTMAN, T., VERHULST, F. C., JADDOE, V. W. & JANSEN, P. W. 2017. Testing the direction of effects between child body composition and restrictive feeding practices: results from a population-based cohort. *The American Journal of Clinical Nutrition,* 106**,** 783-790.

DERKS, I. P. M., BOLHUIS, K., SIJBRANDS, E. J. G., GAILLARD, R., HILLEGERS, M. H. J. & JANSEN, P. W. 2019. Predictors and patterns of eating behaviors across childhood: Results from The Generation R study. *Appetite,* 141**,** 104295.

DEV, D. A., MCBRIDE, B. A., FIESE, B. H., JONES, B. L. & CHO, O. B. O. T. S. K. R. T., HYUNKEUN 2013. Risk factors for overweight/obesity in preschool children: an ecological approach. *Childhood Obesity,* 9**,** 399-408.

DI PASQUALE, R. & RIVOLTA, A. 2018. A Conceptual Analysis of Food Parenting Practices in the Light of Self-Determination Theory: Relatedness-Enhancing, Competence-Enhancing and Autonomy-Enhancing Food Parenting Practices. *Frontiers in Psychology,* 9.

DOAEI, S., GHOLAMALIZADEH, M. & ENTEZARI, M. H. 2015. Maternal self-efficacy and feeding practices in children aged 3-6 years. *Iranian Journal of Psychiatry,* 10**,** 278.

DOLWICK, A. P. & PERSKY, S. 2021. Parental reward-based eating drive predicts parents' feeding behaviors and Children's ultra-processed food intake. *Appetite,* 164**,** 105241.

DOUB, A. E., SMALL, M. & BIRCH, L. L. 2016. A call for research exploring social media influences on mothers' child feeding practices and childhood obesity risk. *Appetite,* 99**,** 298-305.

DRAXTEN, M., FULKERSON, J. A., FRIEND, S., FLATTUM, C. F. & SCHOW, R. 2014. Parental role modeling of fruits and vegetables at meals and snacks is associated with children's adequate consumption. *Appetite,* 78**,** 1-7.

DUGGAN, M., LENHART, A., LAMPE, C. & ELLISON, N. B. 2015. Parent and Social Media. Pew Research Centre: Pew Research Centre.

DURACCIO, K. M., ZAUGG, K. K., NOTTINGHAM, K. & JENSEN, C. D. 2021. Maternal self-efficacy is associated with mother-child feeding practices in middle childhood. *Eating Behaviors,* 40**,** 101475.

DWORKIN, J., CONNELL, J. & DOTY, J. 2013. A literature review of parents' online behavior. *Cyberpsychology,* 7.

EGMOSE, I., KROGH, M. T., STUART, A. C., HAASE, T. W., MADSEN, E. B. & VÆVER, M. S. 2022. How are mothers negatively affected and supported by following parenting-related Instagram profiles? A mixed-methods study. *Acta Psychologica,* 227**,** 103593.

EICHLER, J., SCHMIDT, R., POULAIN, T., HIEMISCH, A., KIESS, W. & HILBERT, A. 2019. Stability, continuity, and bi-directional associations of parental feeding practices and standardized child body mass index in children from 2 to 12 years of age. *Nutrients,* 11**,** 1751.

ELLIS, J. M., GALLOWAY, A. T., WEBB, R. M., MARTZ, D. M. & FARROW, C. V. 2016. Recollections of pressure to eat during childhood, but not picky eating, predict young adult eating behavior. *Appetite,* 97**,** 58-63.

ELLIS, J. M., SCHENK, R. R., GALLOWAY, A. T., ZICKGRAF, H. F., WEBB, R. M. & MARTZ, D. M. 2018. A multidimensional approach to understanding the potential risk factors and covariates of adult picky eating. *Appetite,* 125**,** 1-9.

EMERSON, J. A., HURLEY, K. M., CAULFIELD, L. E. & BLACK, M. M. 2017. Maternal mental health symptoms are positively related to emotional and restrained eating attitudes in a statewide sample of mothers participating in a supplemental nutrition program for women, infants and young children. *Maternal and Child Nutrition,* 13.

EMMETT, P. M., JONES, L. R. & NORTHSTONE, K. 2015. Dietary patterns in the Avon Longitudinal Study of Parents and Children. *Nutrition Reviews,* 73**,** 207-230.

ENTIN, A., KAUFMAN-SHRIQUI, V., NAGGAN, L., VARDI, H. & SHAHAR, D. R. 2014. Parental feeding practices in relation to low diet quality and obesity among LSES children. *Journal of the American College of Nutrition,* 33**,** 306-14.

ERNST, B., WILMS, B., THURNHEER, M. & SCHULTES, B. 2015. Eating behaviour in treatment-seeking obese subjects – Influence of sex and BMI classes. *Appetite,* 95**,** 96-100.

ERRIDGE, S., MOUSSA, O., MCINTYRE, C., HARIRI, A., TOLLEY, N., KOTECHA, B. & PURKAYASTHA, S. 2021. Obstructive Sleep Apnea in Obese Patients: a UK Population Analysis. *Obesity Surgery,* 31**,** 1986-1993.

FAIRBURN, C. G. & BEGLIN, S. J. 1994. Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders,* 16**,** 363-370.

FAIRBURN, C. G., WELCH, S. L., DOLL, H. A., DAVIES, B. A. & O'CONNOR, M. E. 1997. Risk factors for bulimia nervosa: A community-based case-control study. *Archives of General Psychiatry,* 54**,** 509-517.

FAITH, M. S., SCANLON, K. S., BIRCH, L. L., FRANCIS, L. A. & SHERRY, B. 2004. Parent-child feeding strategies and their relationships to child eating and weight status. *Obesity Research,* 12**,** 1711-1722.

FALLON, V., GROVES, R., HALFORD, J. C. G., BENNETT, K. M. & HARROLD, J. A. 2016. Postpartum Anxiety and Infant-Feeding Outcomes:A Systematic Review. *Journal of Human Lactation,* 32**,** 740-758.

FANG, X., WEI, J., HE, X., LIAN, J., HAN, D., AN, P., ZHOU, T., LIU, S., WANG, F. & MIN, J. 2018. Quantitative association between body mass index and the risk of cancer: A global Meta-analysis of prospective cohort studies. *International Journal of Cancer,* 143**,** 1595-1603.

FARROW, C. 2014. A comparison between the feeding practices of parents and grandparents. *Eating Behaviors,* 15**,** 339-342.

FARROW, C. V. & BLISSETT, J. M. 2005. Is Maternal Psychopathology Related to Obesigenic Feeding Practices at 1 Year? *Obesity Research,* 13**,** 1999-2005.

FARROW, C. V., HAYCRAFT, E. & BLISSETT, J. M. 2015. Teaching our children when to eat: how parental feeding practices inform the development of emotional eating—a longitudinal experimental design. *The American Journal of Clinical Nutrition,* 101**,** 908-913.

FAUL, F., ERDFELDER, E., BUCHNER, A. & LANG, A.-G. 2009. Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods,* 41**,** 1149-1160.

FIERLOOS, I. N., WINDHORST, D. A., FANG, Y., MAO, Y., CRONE, M. R., HOSMAN, C. M. H., JANSEN, W. & RAAT, H. 2022. Factors associated with media use for parenting information: A cross-sectional study among parents of children aged 0–8 years. *Nursing Open,* 9**,** 446-457.

FINNANE, J. M., JANSEN, E., MALLAN, K. M. & DANIELS, L. A. 2017. Mealtime structure and responsive feeding practices are associated with less food fussiness and more food enjoyment in children. *Journal of Nutrition Education and Behavior,* 49**,** 11-18. e1.

FISHBEIN, M. & AJZEN, I. 2011. *Predicting and changing behavior: The reasoned action approach*, Taylor & Francis.

FISHER, J. O. & BIRCH, L. L. 2002. Eating in the absence of hunger and overweight in girls from 5 to 7 y of age. *The American Journal of Clinical Nutrition,* 76**,** 226-231.

FLEARY, S. A. & ETTIENNE, R. 2019. The relationship between food parenting practices, parental diet and their adolescents' diet. *Appetite,* 135**,** 79-85.

FLINT, S. W., HUDSON, J. & LAVALLEE, D. 2016. The Portrayal of Obesity in U.K. National Newspapers. *Stigma and health (Washington, D.C.),* 1**,** 16-28.

FLORES-DORANTES, M. T., DÍAZ-LÓPEZ, Y. E. & GUTIÉRREZ-AGUILAR, R. 2020. Environment and Gene Association With Obesity and Their Impact on Neurodegenerative and Neurodevelopmental Diseases. *Frontiers in Neuroscience,* 14.

FRANCIS, L. A. & BIRCH, L. L. 2005a. Maternal influences on daughters' restrained eating behavior. *Health Psychology,* 24**,** 548-554.

FRANCIS, L. A. & BIRCH, L. L. 2005b. Maternal weight status modulates the effects of restriction on daughters' eating and weight. *International Journal of Obesity,* 29**,** 942-949.

FRANCIS, L. A., HOFER, S. M. & BIRCH, L. L. 2001. Predictors of maternal child-feeding style: maternal and child characteristics. *Appetite,* 37**,** 231-43.

FRANCIS, L. A. & SUSMAN, E. J. 2009. Self-regulation and Rapid Weight Gain in Children From Age 3 to 12 Years. *Archives of Pediatrics & Adolescent Medicine,* 163**,** 297-302.

FRANK, P., JOKELA, M., BATTY, G. D., LASSALE, C., STEPTOE, A. & KIVIMÄKI, M. 2022. Overweight, obesity, and individual symptoms of depression: A multicohort study with replication in UK Biobank. *Brain, Behavior, and Immunity,* 105**,** 192-200.

FRANKEL, L. A., POWELL, E. & JANSEN, E. 2018. The relationship between structure-related food parenting practices and children's heightened levels of self-regulation in eating. *Childhood Obesity,* 14**,** 81-88.

FRASER, K., MARKIDES, B. R., BARRETT, N. & LAWS, R. 2021. Fussy eating in toddlers: A content analysis of parents' online support seeking. *Maternal & Child Nutrition,* 17**,** e13171.

FREY, E., BONFIGLIOLI, C., BRUNNER, M. & FRAWLEY, J. 2022. Parents' Use of Social Media as a Health Information Source for Their Children: A Scoping Review. *Academic Pediatrics,* 22**,** 526-539.

GALINDO, L., POWER, T. G., BECK, A. D., FISHER, J. O., O'CONNOR, T. M. & HUGHES, S. O. 2018. Predicting preschool children's eating in the absence of hunger from maternal pressure to eat: A longitudinal study of low-income, Latina mothers. *Appetite,* 120**,** 281-286.

GALLAGHER, D., HEYMSFIELD, S. B., HEO, M., JEBB, S. A., MURGATROYD, P. R. & SAKAMOTO, Y. 2000. Healthy percentage body fat ranges: an approach for developing guidelines based on body mass index. *The American Journal of Clinical Nutrition,* 72**,** 694-701.

GALLOWAY, A. T., FARROW, C. V. & MARTZ, D. M. 2010. Retrospective reports of child feeding practices, current eating behaviors, and BMI in college students. *Obesity,* 18**,** 1330-5.

GALLOWAY, A. T., FIORITO, L. M., FRANCIS, L. A. & BIRCH, L. L. 2006. 'Finish your soup': counterproductive effects of pressuring children to eat on intake and affect. *Appetite,* 46**,** 318-23.

GARCIA, A. L., LOOBY, S., MCLEAN-GUTHRIE, K. & PARRETT, A. 2019. An Exploration of Complementary Feeding Practices, Information Needs and Sources. *International Journal of Environmental Research and Public Health,* 16**,** 4311.

GARIEPY, G., NITKA, D. & SCHMITZ, N. 2010. The association between obesity and anxiety disorders in the population: a systematic review and meta-analysis. *International Journal of Obesity,* 34**,** 407-419.

GERARDS, S. M. & KREMERS, S. P. 2015. The Role of Food Parenting Skills and the Home Food Environment in Children's Weight Gain and Obesity. *Current Obesity Reports,* 4**,** 30-6.

GERMIC, E. R., ECKERT, S. & VULTEE, F. 2021. The Impact of Instagram Mommy Blogger Content on the Perceived Self-Efficacy of Mothers. *Social Media + Society,* 7**,** 20563051211041649.

GILES, D. C. 2016. Observing real-world groups in the virtual field: The analysis of online discussion. *British Journal of Social Psychology,* 55**,** 484-498.

GOLDSTEIN, M., TAN, C. C. & CHOW, C. M. 2017. Maternal emotional feeding practices and adolescent daughters' emotional eating:

Mediating roles of avoidant and preoccupied coping. *Appetite,* 116**,** 339-344.

GOLDTHORPE, J., ALI, N. & CALAM, R. 2018. Providing healthy diets for young children: the experience of parents in a UK inner city. *International Journal of Qualitative Studies on Health and Well-being,* 13**,** 1490623.

GONÇALVES, S., LIMA, V., MACHADO, B. C. & MACHADO, P. 2017. Maternal–child feeding practices and associations with maternal and child characteristics. *Nutrition Today,* 52**,** 232-239.

GOULDING, A. N., ROSENBLUM, K. L., MILLER, A. L., PETERSON, K. E., CHEN, Y. P., KACIROTI, N. & LUMENG, J. C. 2014. Associations between maternal depressive symptoms and child feeding practices in a cross-sectional study of low-income mothers and their young children. *Int J Behav Nutr Phys Act,* 11**,** 75.

GRANEHEIM, U. H., LINDGREN, B.-M. & LUNDMAN, B. 2017. Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Education Today,* 56**,** 29-34.

GRAY, W. N., JANICKE, D. M., WISTEDT, K. M. & DUMONT-DRISCOLL, M. C. 2010. Factors associated with parental use of restrictive feeding practices to control their children's food intake. *Appetite,* 55**,** 332-337.

GREGORY, J. E., PAXTON, S. J. & BROZOVIC, A. M. 2010. Maternal feeding practices, child eating behaviour and body mass index in preschool-aged children: a prospective analysis. *International Journal of Behavioral Nutrition and Physical Activity,* 7**,** 55.

GREGORY, J. E., PAXTON, S. J. & BROZOVIC, A. M. 2011. Maternal feeding practices predict fruit and vegetable consumption in young children. Results of a 12-month longitudinal study. *Appetite,* 57**,** 167-72.

GROLNICK, W. S. & POMERANTZ, E. M. 2009. Issues and Challenges in Studying Parental Control: Toward a New Conceptualization. *Child Development Perspectives,* 3**,** 165-170.

GU, C., WARKENTIN, S., MAIS, L. A. & CARNELL, S. 2017. Ethnic differences in parental feeding behaviors in UK parents of preschoolers. *Appetite,* 113**,** 398-404.

GUH, D. P., ZHANG, W., BANSBACK, N., AMARSI, Z., BIRMINGHAM, C. L. & ANIS, A. 2009. The incidence of co-morbidities related to obesity and overweight: a systematic review and meta-analysis. *BMC Public Health,* 9**,** 88.

GUIVARCH, C., CHARLES, M.-A., FORHAN, A., HEUDE, B. & DE LAUZON-GUILLAIN, B. 2022. Associations between maternal eating behaviors and feeding practices in toddlerhood. *Appetite,* 174**,** 106016.

HAINES, J., DOWNING, K. L., TANG, L., CAMPBELL, K. J. & HESKETH, K. D. 2018. Associations between maternal concern about child's weight and related behaviours and maternal weight-related parenting practices: a cross-sectional study. *International Journal of Behavioral Nutrition and Physical Activity,* 15**,** 104.

HAINES, J., HAYCRAFT, E., LYTLE, L., NICKLAUS, S., KOK, F. J., MERDJI, M., FISBERG, M., MORENO, L. A., GOULET, O. & HUGHES, S. O. 2019. Nurturing Children's Healthy Eating: Position statement. *Appetite,* 137**,** 124-133.

HARRIS, H., MALLAN, K. M., NAMBIAR, S. & DANIELS, L. A. 2014. The relationship between controlling feeding practices and boys' and girls' eating in the absence of hunger. *Eating Behaviors,* 15**,** 519-522.

HARRIS, H. A., JANSEN, E., MALLAN, K. M., DANIELS, L. & THORPE, K. 2018. Concern explaining nonresponsive feeding: a study of mothers' and fathers' response to their Child's fussy eating. *Journal of Nutrition Education and Behavior,* 50**,** 757-764.

HARRISON, K., BOST, K. K., MCBRIDE, B. A., DONOVAN, S. M., GRIGSBY-TOUSSAINT, D. S., KIM, J., LIECHTY, J. M., WILEY, A., TERAN-GARCIA, M. & JACOBSOHN, G. C. 2011. Toward a Developmental Conceptualization of Contributors to Overweight and Obesity in Childhood: The Six-Cs Model. *Child Development Perspectives,* 5**,** 50-58.

HASLAM, D. M., TEE, A. & BAKER, S. 2017. The Use of Social Media as a Mechanism of Social Support in Parents. *Journal of Child and Family Studies,* 26**,** 2026-2037.

HASZARD, J. J., RUSSELL, C. G., BYRNE, R. A., TAYLOR, R. W. & CAMPBELL, K. J. 2019. Early maternal feeding practices: Associations with overweight later in childhood. *Appetite,* 132**,** 91-96.

HAWKINS, S. S., COLE, T. J., LAW, C. & GROUP, A. T. M. C. S. C. H. 2009. An ecological systems approach to examining risk factors for early childhood overweight: findings from the UK Millennium Cohort Study. *Journal of Epidemiology and Community Health,* 63**,** 147-155.

HAYCRAFT, E. 2020. Mental health symptoms are related to mothers' use of controlling and responsive child feeding practices: A replication and extension study. *Appetite,* 147**,** 104523.

HAYCRAFT, E. & BLISSETT, J. 2012. Predictors of paternal and maternal controlling feeding practices with 2-to 5-year-old children. *Journal of Nutrition Education and Behavior,* 44**,** 390-397.

HAYCRAFT, E., KARASOULI, E. & MEYER, C. 2017. Maternal feeding practices and children's eating behaviours: A comparison of mothers with healthy weight versus overweight/obesity. *Appetite,* 116**,** 395-400.

HAYCRAFT, E., POWELL, F. & MEYER, C. 2015. Activity-Related Parenting Practices: Development of the Parenting Related to Activity Measure (PRAM) and Links with Mothers' Eating Psychopathology and Compulsive Exercise Beliefs. *European Eating Disorders Review,* 23**,** 51-61.

HAYCRAFT, E., WITCOMB, G. L. & FARROW, C. 2020. The Child Feeding Guide: A digital health intervention for reducing controlling child feeding practices and maternal anxiety over time. *Nutrition Bulletin,* 45**,** 474-482.

HAYES, A. F. 2017. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*, Guilford publications.

HAZZARD, V. M., LOTH, K. A., BERGE, J. M., LARSON, N. I., FULKERSON, J. A. & NEUMARK-SZTAINER, D. 2020. Does exposure to controlling parental feeding practices during adolescence predict disordered eating behaviors 8 years later in emerging adulthood? *Pediatric Obesity,* 15**,** e12709.

HEALTH & SOCIAL CARE INFORMATION CENTRE. 2015. *Health Survey for England - 2014* [Online]. Available: https://www.gov.uk/government/statistics/health-survey-for-england-2014 [Accessed 14 December 2017].

HEALTH SURVEY FOR ENGLAND. 2019. *Health Survey for England 2018* [Online]. Available: https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2018/summary [Accessed 02 December 2020].

HELLER, R. L., CHIERO, J. D., PUGLISI, M. & MOBLEY, A. R. 2019. Feeding infants and toddlers: A qualitative study to determine parental education needs. *Childhood Obesity,* 15**,** 443-450.

HEMMINKI, K., LI, X., SUNDQUIST, J. & SUNDQUIST, K. 2011. Obesity and familial obesity and risk of cancer. *European Journal of Cancer Prevention,* 20**,** 438-43.

HERLE, M., FILDES, A. & LLEWELLYN, C. H. 2018a. Emotional eating is learned not inherited in children, regardless of obesity risk. *Pediatric Obesity,* 13**,** 628-631.

HERLE, M., FILDES, A., RIJSDIJK, F., STEINSBEKK, S. & LLEWELLYN, C. 2018b. The Home Environment Shapes Emotional Eating. *Child Development,* 89**,** 1423-1434.

HESLEHURST, N., VIEIRA, R., AKHTER, Z., BAILEY, H., SLACK, E., NGONGALAH, L., PEMU, A. & RANKIN, J. 2019. The association between maternal body mass index and child obesity: A systematic review and meta-analysis. *PLoS Medicine,* 16**,** e1002817.

HIGGS, S. & THOMAS, J. 2016. Social influences on eating. *Current Opinion in Behavioral Sciences,* 9**,** 1-6.

HILTON, S., PATTERSON, C. & TEYHAN, A. 2012. Escalating coverage of obesity in UK newspapers: the evolution and framing of the "obesity epidemic" from 1996 to 2010. *Obesity,* 20**,** 1688-95.

HOLLEY, C. E., FARROW, C. & HAYCRAFT, E. 2017. A Systematic Review of Methods for Increasing Vegetable Consumption in Early Childhood. *Current Nutrition Reports,* 6**,** 157-170.

HOLLEY, C. E., HAYCRAFT, E. & FARROW, C. 2018. Predicting children's fussiness with vegetables: The role of feeding practices. *Maternal and Child Nutrition,* 14**,** e12442.

HOLLEY, C. E., HAYCRAFT, E. & FARROW, C. 2020. Unpacking the relationships between positive feeding practices and children's eating behaviours: The moderating role of child temperament. *Appetite,* 147**,** 104548.

HOLUB, S. C. & NELSON, J. A. 2022. Daily variability in mothers' and fathers' feeding practices and associations with children's eating behaviors. *Appetite,* 176**,** 106106.

HORNING, M. L., FULKERSON, J. A., FRIEND, S. E. & STORY, M. 2017. Reasons Parents Buy Prepackaged, Processed Meals: It Is More Complicated Than "I Don't Have Time". *Journal of Nutrition Education and Behavior,* 49**,** 60-66.e1.

HORSLEY, T., DINGWALL, O. & SAMPSON, M. 2011. Checking reference lists to find additional studies for systematic reviews. *Cochrane Database of Systematic Reviews***,** Mr000026.

HSIEH, H.-F. & SHANNON, S. E. 2005. Three approaches to qualitative content analysis. *Qualitative Health Research,* 15**,** 1277-1288.

HUANG, T. T. K., HOWARTH, N. C., LIN, B. H., ROBERTS, S. B. & MCCRORY, M. A. 2004. Energy intake and meal portions: associations with BMI percentile in US children. *Obesity Research,* 12**,** 1875-1885.

HUDSON, J. I., HIRIPI, E., POPE JR, H. G. & KESSLER, R. C. J. B. P. 2007. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. 61**,** 348-358.

HUGHES, S. O. & FRAZIER-WOOD, A. C. 2016. Satiety and the Self-Regulation of Food Take in Children: a Potential Role for Gene-Environment Interplay. *Current Obesity Reports,* 5**,** 81-87.

IBM CORP. 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.

JAHNKE, D. L. & WARSCHBURGER, P. A. 2008. Familial transmission of eating behaviors in preschool-aged children. *Obesity,* 16**,** 1821-5.

JAMES, B. L., ROE, L. S., LOKEN, E. & ROLLS, B. J. 2018. Early predictors of weight loss in a 1-year behavioural weight-loss programme. *Obesity Science and Practice,* 4**,** 20-28.

JANSEN, E., THAPALIYA, G., AGHABABIAN, A., SADLER, J., SMITH, K. & CARNELL, S. 2021. Parental stress, food parenting practices and child snack intake during the COVID-19 pandemic. *Appetite,* 161**,** 105119.

JANSEN, P. W., DERKS, I. P. M., MOU, Y., VAN RIJEN, E. H. M., GAILLARD, R., MICALI, N., VOORTMAN, T. & HILLEGERS, M. H. J. 2020. Associations of parents' use of food as reward with children's eating behaviour and BMI in a population-based cohort. *Pediatric Obesity,* 15**,** e12662.

JANSEN, P. W., THARNER, A., VAN DER ENDE, J., WAKE, M., RAAT, H., HOFMAN, A., VERHULST, F. C., VAN IJZENDOORN, M. H., JADDOE, V. W. & TIEMEIER, H. 2014. Feeding practices and child weight: is the association bidirectional in preschool children? *The American Journal of Clinical Nutrition,* 100**,** 1329-36.

JILLANI, Z., SCOTT, V. C., THORPE, A. M. & TAYLOR, Y. J. 2020. Depiction of breastfeeding in newspapers in the United States: 2007– 2016. *Breastfeeding Medicine,* 15**,** 739-746.

JINGXIONG, J., ROSENQVIST, U., HUISHAN, W., KOLETZKO, B., GUANGLI, L., JING, H. & GREINER, T. 2009. Relationship of parental characteristics and feeding practices to overweight in infants and young children in Beijing, China. *Public Health Nutrition,* 12**,** 973-978.

JOHANNSEN, D. L., JOHANNSEN, N. M. & SPECKER, B. L. 2006. Influence of Parents' Eating Behaviors and Child Feeding Practices on Children's Weight Status. *Obesity,* 14**,** 431-439.

JOHNSON, S. L. & BIRCH, L. L. 1994. Parents' and children's adiposity and eating style. *Pediatrics,* 94**,** 653-61.

JOHNSON, W., LI, L., KUH, D. & HARDY, R. 2015. How Has the Age-Related Process of Overweight or Obesity Development Changed over Time? Co-ordinated Analyses of Individual Participant Data from Five United Kingdom Birth Cohorts. *PLoS Medicine,* 12**,** e1001828; discussion e1001828.

KAIREY, L., MATVIENKO-SIKAR, K., KELLY, C., MCKINLEY, M. C., O'CONNOR, E. M., KEARNEY, P. M., WOODSIDE, J. V. & HARRINGTON, J. M. 2018. Plating up appropriate portion sizes for children: a systematic review of parental food and beverage portioning practices. *Obesity Reviews,* 19**,** 1667-1678.

KALLEM, S., GRUVER, R. S., VIRUDACHALAM, S. & FIKS, A. G. 2018. Mothers' Facebook posts about infant health: findings from the Grow2Gether study. *BMC Pediatrics,* 18**,** 341.

KELLY, S., MARTIN, S., KUHN, I., COWAN, A., BRAYNE, C. & LAFORTUNE, L. 2016. Barriers and Facilitators to the Uptake and Maintenance of Healthy Behaviours by People at Mid-Life: A Rapid Systematic Review. *PLoS One,* 11**,** e0145074.

KERRIGAN, S. G., CLARK, M., CONVERTINO, A., FORMAN, E. M. & BUTRYN, M. L. 2018. The association between previous success with weight loss through dietary change and success in a lifestyle modification program. *Journal of Behavioral Medicine,* 41**,** 152-159.

KININMONTH, A. R., JAMIL, N., ALMATROUK, N. & EVANS, C. E. L. 2017. Quality assessment of nutrition coverage in the media: a 6-week survey of five popular UK newspapers. *BMJ Open,* 7**,** e014633.

KOENDERS, P. G. & VAN STRIEN, T. 2011. Emotional Eating, Rather Than Lifestyle Behavior, Drives Weight Gain in a Prospective Study in 1562 Employees. *Journal of Occupational and Environmental Medicine,* 53**,** 1287-1293.

KRAMER, R. F., COUTINHO, A. J., VAETH, E., CHRISTIANSEN, K., SURATKAR, S. & GITTELSOHN, J. 2012. Healthier home food preparation methods and youth and caregiver psychosocial factors are associated with lower BMI in African American youth. *The Journal of Nutrition,* 142**,** 948-54.

KRÖLLER, K., JAHNKE, D. & WARSCHBURGER, P. 2013. Are maternal weight, eating and feeding practices associated with emotional eating in childhood? *Appetite,* 65**,** 25-30.

KRÖLLER, K. & WARSCHBURGER, P. 2008. Associations between maternal feeding style and food intake of children with a higher risk for overweight. *Appetite,* 51**,** 166-172.

KUBB, C. & FORAN, H. M. 2020. Online Health Information Seeking by Parents for Their Children: Systematic Review and Agenda for Further Research. *Journal of Medical Internet Research,* 22**,** e19985.

LACY, S. & RIFFE, D. 1996. Sampling Error and Selecting Intercoder Reliability Samples for Nominal Content Categories. *Journalism & Mass Communication Quarterly,* 73**,** 963-973.

LAITINEN, J., POWER, C. & JARVELIN, M. R. 2001. Family social class, maternal body mass index, childhood body mass index, and age at menarche as predictors of adult obesity. *The American Journal of Clinical Nutrition,* 74**,** 287-94.

LANDIS, J. R. & KOCH, G. G. 1977. The Measurement of Observer Agreement for Categorical Data. *Biometrics,* 33**,** 159-174.

LANG, I. A., LLEWELLYN, D. J., ALEXANDER, K. & MELZER, D. 2008. Obesity, physical function, and mortality in older adults. *Journal of the American Geriatrics Society,* 56**,** 1474-1478.

LARSEN, J. K., HERMANS, R. C., SLEDDENS, E. F., ENGELS, R. C., FISHER, J. O. & KREMERS, S. P. 2015. How parental dietary behavior and food parenting practices affect children's dietary behavior. Interacting sources of influence? *Appetite,* 89**,** 246-57.

LAWRENCE, P. J., MURAYAMA, K. & CRESWELL, C. 2019. Systematic Review and Meta-Analysis: Anxiety and Depressive Disorders in

Offspring of Parents With Anxiety Disorders. *Journal of the American Academy of Child & Adolescent Psychiatry,* 58**,** 46-60.

LEBRON, C. N., ST. GEORGE, S. M., ECKEMBRECHER, D. G. & ALVAREZ, L. M. 2020. "Am I doing this wrong?" Breastfeeding mothers' use of an online forum. *Maternal & Child Nutrition,* 16**,** e12890.

LEE, C. Y., LEDOUX, T. A., JOHNSTON, C. A., AYALA, G. X. & O'CONNOR, D. P. 2019. Association of parental body mass index (BMI) with child's health behaviors and child's BMI depend on child's age. *BMC Obesity,* 6**,** 11.

LEUNG, S. L., BARBER, J. A., BURGER, A. & BARNES, R. D. 2018. Factors associated with healthy and unhealthy workplace eating behaviours in individuals with overweight/obesity with and without binge eating disorder. *Obesity Science & Practice,* 4**,** 109-118.

LEV-ARI, L. & ZOHAR, A. H. 2013. Nothing gained: an explorative study of the long-term effects of perceived maternal feeding practices on women's and men's adult BMI, body image dissatisfaction, and disordered eating. *International Journal of Psychology,* 48**,** 1201-11.

LEV-ARI, L., ZOHAR, A. H., BACHNER-MELMAN, R. & TOTAH HANHART, A. 2021. Intergenerational Transmission of Child Feeding Practices. *Int J Environ Res Public Health,* 18**,** 8183.

LEWIS, M. & WOROBEY, J. 2011. Mothers and toddlers lunch together. The relation between observed and reported behavior. *Appetite,* 56**,** 732-736.

LEWIS, S., KATSIKITIS, M. & MULGREW, K. 2015. Like mother, like daughter? An examination of the emotive responses to food. *Journal of Health Psychology,* 20**,** 828-838.

LINABERY, A. M., NAHHAS, R. W., JOHNSON, W., CHOH, A. C., TOWNE, B., ODEGAARD, A. O., CZERWINSKI, S. A. & DEMERATH, E. W. 2013. Stronger influence of maternal than paternal obesity on infant and early childhood body mass index: the Fels Longitudinal Study. *Pediatric Obesity,* 8**,** 159-169.

LINDE, J. A., JEFFERY, R. W., LEVY, R. L., SHERWOOD, N. E., UTTER, J., PRONK, N. P. & BOYLE, R. G. 2004. Binge eating disorder, weight control self-efficacy, and depression in overweight men and women. *International Journal of Obesity,* 28**,** 418-25.

LINDSAY, A. C., MESA, T., GREANEY, M. L., WALLINGTON, S. F. & WRIGHT, J. A. 2017. Associations Between Maternal Depressive Symptoms and Nonresponsive Feeding Styles and Practices in Mothers of Young Children: A Systematic Review. *JMIR Public Health Surveillance,* 3**,** e29.

LIPOWSKA, M., LIPOWSKI, M., JUREK, P., JANKOWSKA, A. M. & PAWLICKA, P. 2018. Gender and Body-Fat Status as Predictors of

Parental Feeding Styles and Children's Nutritional Knowledge, Eating Habits and Behaviours. *International Journal of Environmental Research and Public Health,* 15.

LLEWELLYN, C. & WARDLE, J. 2015. Behavioral susceptibility to obesity: Gene–environment interplay in the development of weight. *Physiology & Behavior,* 152**,** 494-501.

LLEWELLYN, C. H. & FILDES, A. 2017. Behavioural Susceptibility Theory: Professor Jane Wardle and the Role of Appetite in Genetic Risk of Obesity. *Current Obesity Reports,* 6**,** 38-45.

LOTH, K. A., JI, Z., WOLFSON, J., NEUMARK-SZTAINER, D., BERGE, J. M. & FISHER, J. O. 2022. A descriptive assessment of a broad range of food-related parenting practices in a diverse cohort of parents of preschoolers using the novel Real-Time Parent Feeding Practices Survey. *International Journal of Behavioral Nutrition and Physical Activity,* 19**,** 22.

LOTH, K. A., MACLEHOSE, R. F., FULKERSON, J. A., CROW, S. & NEUMARK-SZTAINER, D. 2013a. Eat this, not that! Parental demographic correlates of food-related parenting practices. *Appetite,* 60**,** 140-147.

LOTH, K. A., MACLEHOSE, R. F., FULKERSON, J. A., CROW, S. & NEUMARK-SZTAINER, D. 2013b. Food-Related Parenting Practices and Adolescent Weight Status: A Population-Based Study. *Pediatrics,* 131**,** e1443-e1450.

LOTH, K. A., MACLEHOSE, R. F., FULKERSON, J. A., CROW, S. & NEUMARK-SZTAINER, D. 2014. Are food restriction and pressure-to-eat parenting practices associated with adolescent disordered eating behaviors? *International Journal of Eating Disorders,* 47**,** 310-4.

LOTH, K. A., NOGUEIRA DE BRITO, J., NEUMARK-SZTAINER, D., FISHER, J. O. & BERGE, J. M. 2018. A Qualitative Exploration Into the Parent–Child Feeding Relationship: How Parents of Preschoolers Divide the Responsibilities of Feeding With Their Children. *Journal of Nutrition Education and Behavior,* 50**,** 655-667.

LUMENG, J. C. & BURKE, L. M. 2006. Maternal prompts to eat, child compliance, and mother and child weight status. *The Journal of Pediatrics,* 149**,** 330-335.

LUPPINO, F. S., DE WIT, L. M., BOUVY, P. F., STIJNEN, T., CUIJPERS, P., PENNINX, B. W. J. H. & ZITMAN, F. G. 2010. Overweight, Obesity, and Depression: A Systematic Review and Meta-analysis of Longitudinal Studies. *Archives of General Psychiatry,* 67**,** 220-229.

LYDECKER, J. A. & GRILO, C. M. 2016. Fathers and mothers with eating-disorder psychopathology: Associations with child eating-disorder behaviors. *Journal of Psychosomatic Research,* 86**,** 63-69.

LYDECKER, J. A. & GRILO, C. M. 2017a. Children of parents with BED have more eating behavior disturbance than children of parents with obesity or healthy weight. *International Journal of Eating Disorders,* 50**,** 648-656.

LYDECKER, J. A. & GRILO, C. M. 2017b. Does your child's weight influence how you judge yourself as a parent? A cross-sectional study to define and examine parental overvaluation of weight/shape. *Preventive Medicine,* 105**,** 265-270.

MACKINNON, D. P., LOCKWOOD, C. M., HOFFMAN, J. M., WEST, S. G. & SHEETS, V. 2002. A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods,* 7**,** 83.

MACKINNON, D. P., LOCKWOOD, C. M. & WILLIAMS, J. 2004. Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research,* 39**,** 99-128.

MACLEAN, A., SWEETING, H., WALKER, L., PATTERSON, C., RÄISÄNEN, U. & HUNT, K. 2015. "It's not healthy and it's decidedly not masculine": a media analysis of UK newspaper representations of eating disorders in males. *BMJ Open,* 5**,** e007468.

MACNEILL, V., FOLEY, M., QUIRK, A. & MCCAMBRIDGE, J. 2016. Shedding light on research participation effects in behaviour change trials: a qualitative study examining research participant experiences. *BMC Public Health,* 16**,** 91.

MAFFEIS, C., TALAMINI, G. & TATÒ, L. 1998. Influence of diet, physical activity and parents' obesity on children's adiposity: a four-year longitudinal study. *International Journal of Obesity,* 22**,** 758.

MAŁACHOWSKA, A. & JEŻEWSKA-ZYCHOWICZ, M. 2021. Does Examining the Childhood Food Experiences Help to Better Understand Food Choices in Adulthood? *Nutrients,* 13**,** 983.

MARB, A., LIBUDA, L., STANDL, M., KOLETZKO, S., BAUER, C.-P., SCHIKOWSKI, T., BERDEL, D., VON BERG, A., HERBERTH, G., BÜHLMEIER, J. & HARRIS, C. P. 2022. Obesogenic eating behaviour and dietary intake in German children and adolescents: results from the GINIplus and LISA birth cohort studies. *European Journal of Clinical Nutrition*.

MARTIN, R. M., NESS, A. R., GUNNELL, D., EMMETT, P. & SMITH, G. D. 2004. Does Breast-Feeding in Infancy Lower Blood Pressure in Childhood? *Circulation,* 109**,** 1259-1266.

MARTINI, M. G., BARONA-MARTINEZ, M. & MICALI, N. 2020. Eating disorders mothers and their children: a systematic review of the literature. *Archives Women's Mental Health,* 23**,** 449-467.

MCCAFFREE, J. 2003. Childhood eating patterns: the roles parents play. *Journal of the American Dietetic Association,* 103**,** 1587.

MCPHIE, S., SKOUTERIS, H., DANIELS, L. & JANSEN, E. 2014. Maternal correlates of maternal child feeding practices: a systematic review. *Matern Child Nutr,* 10**,** 18-43.

MELBYE, E. L., ØGAARD, T. & ØVERBY, N. C. 2011. Validation of the Comprehensive Feeding Practices Questionnaire with parents of 10- to-12-year-olds. *BMC Medical Research Methodology,* 11**,** 113.

MICALI, N., DE STAVOLA, B., PLOUBIDIS, G., SIMONOFF, E., TREASURE, J. & FIELD, A. E. 2015. Adolescent eating disorder behaviours and cognitions: Gender-specific effects of child, maternal and family risk factors. *British Journal of Psychiatry,* 207**,** 320-327.

MILANESCHI, Y., SIMMONS, W. K., VAN ROSSUM, E. F. C. & PENNINX, B. W. J. H. 2019. Depression and obesity: evidence of shared biological mechanisms. *Molecular Psychiatry,* 24**,** 18-33.

MILLER, N., MALLAN, K. M., BYRNE, R., DE JERSEY, S., JANSEN, E. & DANIELS, L. A. 2020. Non-responsive feeding practices mediate the relationship between maternal and child obesogenic eating behaviours. *Appetite,* 151**,** 104648.

MILLS, S., BROWN, H., WRIEDEN, W., WHITE, M. & ADAMS, J. 2017a. Frequency of eating home cooked meals and potential benefits for diet and health: cross-sectional analysis of a population-based cohort study. *International Journal of Behavioral Nutrition and Physical Activity,* 14**,** 109.

MILLS, S., WHITE, M., BROWN, H., WRIEDEN, W., KWASNICKA, D., HALLIGAN, J., ROBALINO, S. & ADAMS, J. 2017b. Health and social determinants and outcomes of home cooking: A systematic review of observational studies. *Appetite,* 111**,** 116-134.

MITCHELL, S. J., GODOY, L., SHABAZZ, K. & HORN, I. B. 2014. Internet and mobile technology use among urban African American parents: survey study of a clinical population. *Journal of Medical Internet Research,* 16**,** e9.

MOHER, D., LIBERATI, A., TETZLAFF, J. & ALTMAN, D. G. 2009. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of Internal Medicine,* 151**,** 264-9, w64.

MOLYNEAUX, E., POSTON, L., ASHURST-WILLIAMS, S. & HOWARD, L. M. 2014. Obesity and mental disorders during pregnancy and postpartum: a systematic review and meta-analysis. *Obstetrics and Gynecology,* 123**,** 857-867.

MOND, J. M., HAY, P. J., RODGERS, B., OWEN, C. & BEUMONT, P. J. 2004a. Temporal stability of the Eating Disorder Examination Questionnaire. *International Journal of Eating Disorders,* 36**,** 195- 203.

MOND, J. M., HAY, P. J., RODGERS, B., OWEN, C. & BEUMONT, P. J. V. 2004b. Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy,* 42**,** 551-567.

MOON, R. Y., MATHEWS, A., ODEN, R. & CARLIN, R. 2019. Mothers' Perceptions of the Internet and Social Media as Sources of Parenting and Health Information: Qualitative Study. *Journal of Medical Internet Research,* 21**,** e14289.

MORRISON, H., POWER, T. G., NICKLAS, T. & HUGHES, S. O. 2013. Exploring the effects of maternal eating patterns on maternal feeding and child eating. *Appetite,* 63**,** 77-83.

MOSCHONIS, G., DE LAUZON-GUILLAIN, B., JONES, L., OLIVEIRA, A., LAMBRINOU, C. P., DAMIANIDI, L., LIORET, S., MOREIRA, P., LOPES, C., EMMETT, P., CHARLES, M. A. & MANIOS, Y. 2017. The effect of early feeding practices on growth indices and obesity at preschool children from four European countries and UK schoolchildren and adolescents. *European Journal of Pediatrics,* 176**,** 1181-1192.

MOSCHONIS, G., SIOPIS, G., ANASTASIOU, C., IOTOVA, V., STEFANOVA, T., DIMOVA, R., RURIK, I., RADÓ, A. S., CARDON, G., DE CRAEMER, M., LINDSTRÖM, J., MORENO, L. A., DE MIGUEL-ETAYO, P., MAKRILAKIS, K., LIATIS, S., MANIOS, Y. & GROUP, O. B. O. T. F. D.-S. 2022. Prevalence of Childhood Obesity by Country, Family Socio-Demographics, and Parental Obesity in Europe: The Feel4Diabetes Study. *Nutrients,* 14**,** 1830.

MOSELEY, K. L., FREED, G. L. & GOOLD, S. D. 2011. Which Sources of Child Health Advice Do Parents Follow? *Clinical Pediatrics,* 50**,** 50-56.

MOSKOWITZ, L. & WEISELBERG, E. 2017. Anorexia nervosa/atypical anorexia nervosa. *Current Problems in Pediatric Adolescent Health Care,* 47**,** 70-84.

MOUJAES, M. & VERRIER, D. 2021. Instagram use, instamums, and anxiety in mothers of young children. *Journal of Media Psychology: Theories, Methods, and Applications,* 33**,** 72.

MUMSNET. 2022. *Terms of Use* [Online]. Mumsnet. Available: https://www.mumsnet.com/i/terms-of-use [Accessed 24 January 2022].

MUSHER-EIZENMAN, DE LAUZON-GUILLAIN, B., HOLUB, S. C., LEPORC, E. & CHARLES, M. A. 2009. Child and parent characteristics related to parental feeding practices. A cross-cultural examination in the US and France. *Appetite,* 52**,** 89-95.

MUSHER-EIZENMAN & HOLUB, S. 2007. Comprehensive Feeding Practices Questionnaire: validation of a new measure of parental feeding practices. *J Pediatr Psychol,* 32**,** 960-72.

NEWBY, R., BRODRIBB, W., WARE, R. S. & DAVIES, P. S. 2015. Antenatal information sources for maternal and infant diet. *Breastfeeding Review,* 23**,** 13-21.

NHS. 2019a. *What is the body mass index (BMI)?* [Online]. Available: https://www.nhs.uk/common-health-questions/lifestyle/what-is-the-body-mass-index-bmi/ [Accessed 08 March 2021].

NHS. 2019b. *Your baby's first solid foods* [Online]. Available: https://www.nhs.uk/conditions/pregnancy-and-baby/solid-foods-weaning/ [Accessed 02 January 2022].

NHS. 2020. *Statistics on Obesity, Physical Activity and Diet, England, 2020* [Online]. Available: https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/england-2020 [Accessed 06 June 2022].

NICE. 2012. *Guidelines Manual. Appendix G: Quality appraisal checklist - quantitative studies reporting correlations and associations.* [Online]. Available: https://www.nice.org.uk/process/pmg4/chapter/appendix-g-quality-appraisal-checklist-quantitative-studies-reporting-correlations-and [Accessed 10 January 2017].

NICHOLLS, W., DEVONPORT, T. J. & BLAKE, M. 2016. The association between emotions and eating behaviour in an obese population with binge eating disorder. *Obesity Reviews,* 17**,** 30-42.

NIMEGEER, A., PATTERSON, C. & HILTON, S. 2019. Media framing of childhood obesity: A content analysis of UK newspapers from 1996 to 2014. *BMJ Open,* 9**,** e025646.

NOONAN, R. J. 2018. Poverty, Weight Status, and Dietary Intake among UK Adolescents. *International Journal of Environmental Research and Public Health,* 15**,** 1224.

NORTON, L., PARKINSON, J., HARRIS, N. & HART, L. M. 2021. What Factors Predict the Use of Coercive Food Parenting Practices among Mothers of Young Children? An Examination of Food Literacy, Disordered Eating and Parent Demographics. *International Journal of Environmental Research and Public Health,* 18**,** 10538.

O'CONNOR, T. M., MÂSSE, L. C., TU, A. W., WATTS, A. W., HUGHES, S. O., BEAUCHAMP, M. R., BARANOWSKI, T., PHAM, T., BERGE, J. M., FIESE, B., GOLLEY, R., HINGLE, M., KREMERS, S. P. J., RHEE, K. E., SKOUTERIS, H. & VAUGHN, A. 2017. Food parenting practices for 5 to 12 year old children: a concept map analysis of parenting and nutrition experts input. *International Journal of Behavioral Nutrition and Physical Activity,* 14**,** 122.

OFCOM. 2021. *News consumption in the UK: 2021 report* [Online]. Available: https://www.ofcom.org.uk/research-and-data/tv-radio-and-on-demand/news-media/news-consumption [Accessed 28 February 2022 2022].

ONG, J. X., ULLAH, S., MAGAREY, A., MILLER, J. & LESLIE, E. 2017. Relationship between the home environment and fruit and vegetable consumption in children aged 6–12 years: a systematic review. *Public Health Nutrition,* 20**,** 464-480.

ONS. 2020. *Internet Access in Great Britain: Households and Individuals 2020* [Online]. Available: https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/datasets/internetaccesshouseholdsandindividualsreferencetables [Accessed 28 February 2022].

ORCHARD, L. J. & NICHOLLS, W. 2020. A systematic review exploring the impact of social media on breastfeeding practices. *Current Psychology***,** 1-17.

PALAVRAS, M. A., KAIO, G. H., MARI JDE, J. & CLAUDINO, A. M. 2011. A review of Latin American studies on binge eating disorder. *Brazilian Journal of Psychiatry,* 33 Suppl 1**,** S81-108.

PALFREYMAN, Z., HAYCRAFT, E. & MEYER, C. 2014. Development of the P arental M odelling of E ating B ehaviours S cale (PARM): links with food intake among children and their mothers. *Maternal & Child Nutrition,* 10**,** 617-629.

PANTESCO, E. J. & KAN, I. P. 2021. False beliefs about sleep and their associations with sleep-related behavior. *Sleep Health*.

PARK, S., LI, R. & BIRCH, L. 2015. Mothers' child-feeding practices are associated with children's sugar-sweetened beverage intake. *The Journal of Nutrition,* 145**,** 806-12.

PATEL, C., KARASOULI, E., SHUTTLEWOOD, E. & MEYER, C. 2018. Food Parenting Practices among Parents with Overweight and Obesity: A Systematic Review. *Nutrients,* 10.

PATEL, C., SHUTTLEWOOD, E., KARASOULI, E. & MEYER, C. 2022. Mothers' experiences of their own parents' food parenting practices and use of coercive food-related practices with their children. *Appetite,* 175**,** 106078.

PEARSON, N., BIDDLE, S. J. H. & GORELY, T. 2009. Family correlates of fruit and vegetable consumption in children and adolescents: a systematic review. *Public Health Nutrition,* 12**,** 267-283.

PEDERSEN, S. & SMITHSON, J. 2010. Membership and activity in an online parenting community. *Handbook of research on discourse behavior and digital communication: Language structures and social interaction.* IGI Global.

PEDERSEN, S. & SMITHSON, J. 2013. Mothers with attitude — How the Mumsnet parenting forum offers space for new forms of femininity to emerge online. *Women's Studies International Forum,* 38**,** 97-106.

PICARD, R. G. & YEO, M. 2011. Medical and Health News and Information in the UK Media: The Current State of Knowledge. Reuters Institute for the Study of Journalism, University of Oxford

PIERNAS, C. & POPKIN, B. M. 2011. Increased portion sizes from energy-dense foods affect total energy intake at eating occasions in US children and adolescents: patterns and trends by age group and sociodemographic characteristics, 1977–2006. *The American Journal of Clinical Nutrition,* 94**,** 1324-1332.

POTTER, C., FERRIDAY, D., GRIGGS, R. L., HAMILTON-SHIELD, J. P., ROGERS, P. J. & BRUNSTROM, J. M. 2018. Parental beliefs about portion size, not children's own beliefs, predict child BMI. *Pediatric Obesity,* 13**,** 232-238.

POWERS, S. W., CHAMBERLIN, L. A., VAN SCHAICK, K. B., SHERMAN, S. N. & WHITAKER, R. C. 2006. Maternal feeding strategies, child eating behaviors, and child BMI in low-income African-American preschoolers. *Obesity,* 14**,** 2026-33.

PRATT, M., HOFFMANN, D., TAYLOR, M. & MUSHER-EIZENMAN, D. 2019. Structure, coercive control, and autonomy promotion: A comparison of fathers' and mothers' food parenting strategies. *Journal of Health Psychology,* 24**,** 1863-1877.

PREACHER, K. J. & HAYES, A. F. 2004. SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers,* 36**,** 717-731.

PREACHER, K. J. & HAYES, A. F. 2008. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods,* 40**,** 879-891.

PRINSEN, C. A. C., MOKKINK, L. B., BOUTER, L. M., ALONSO, J., PATRICK, D. L., DE VET, H. C. W. & TERWEE, C. B. 2018. COSMIN guideline for systematic reviews of patient-reported outcome measures. *Quality of Life Research,* 27**,** 1147-1157.

PUBLIC HEALTH ENGLAND. 2015. *Childhood obesity: applying All Our Health* [Online]. Available: https://www.gov.uk/government/publications/childhood-obesity-applying-all-our-health/childhood-obesity-applying-all-our-health [Accessed 24 August 2017].

PUHL, R. M. & SCHWARTZ, M. B. 2003. If you are good you can have a cookie: How memories of childhood food rules link to adult eating behaviors. *Eating Behaviors,* 4**,** 283-93.

RAAIJMAKERS, L. G., GEVERS, D. W., TEUSCHER, D., KREMERS, S. P. & VAN ASSEMA, P. 2014. Emotional and instrumental feeding

practices of Dutch mothers regarding foods eaten between main meals. *BMC Public Health,* 14**,** 171.

RADEY, M. & RANDOLPH, K. A. 2009. Parenting Sources: How Do Parents Differ in Their Efforts to Learn About Parenting? *Family Relations,* 58**,** 536-548.

RAJAN, T. M. & MENON, V. 2017. Psychiatric disorders and obesity: A review of association studies. *Journal of Postgraduate Medicine,* 63**,** 182-190.

RAMÍREZ-CONTRERAS, C., FARRÁN-CODINA, A., IZQUIERDO-PULIDO, M. & ZERÓN-RUGERIO, M. F. 2021. A higher dietary restraint is associated with higher BMI: a cross-sectional study in college students. *Physiology & Behavior,* 240**,** 113536.

RANCOURT, D. & MCCULLOUGH, M. B. 2015. Overlap in Eating Disorders and Obesity in Adolescence. *Current Diabetes Reports,* 15**,** 78.

RANKIN, J., MATTHEWS, L., COBLEY, S., HAN, A., SANDERS, R., WILTSHIRE, H. D. & BAKER, J. S. 2016. Psychological consequences of childhood obesity: psychiatric comorbidity and prevention. *Adolescent Health, Medicine and Therapeutics,* 7**,** 125-146.

REILLY, J. J., ARMSTRONG, J., DOROSTY, A. R., EMMETT, P. M., NESS, A., ROGERS, I., STEER, C. & SHERRIFF, A. 2005. Early life risk factors for obesity in childhood: cohort study. *BMJ,* 330**,** 1357.

REMINGTON, A., AN˜ÑEZ, E., CROKER, H., WARDLE, J. & COOKE, L. 2011. Increasing food acceptance in the home setting: a randomized controlled trial of parent-administered taste exposure with incentives. *The American Journal of Clinical Nutrition,* 95**,** 72-77.

RESTA, O., FOSCHINO-BARBARO, M. P., LEGARI, G., TALAMO, S., BONFITTO, P., PALUMBO, A., MINENNA, A., GIORGINO, R. & DE PERGOLA, G. 2001. Sleep-related breathing disorders, loud snoring and excessive daytime sleepiness in obese subjects. *International Journal of Obesity,* 25**,** 669-75.

REUTERS INSTITUTE. 2017. *Digital News Report 2017* [Online]. University of Oxford Available: https://reutersinstitute.politics.ox.ac.uk/sites/default/files/Digital%20 News%20Report%202017%20web_0.pdf [Accessed 30 March 2022 2022].

RICCA, V., CASTELLINI, G., SAURO, C. L., RAVALDI, C., LAPI, F., MANNUCCI, E., ROTELLA, C. M. & FARAVELLI, C. 2009. Correlations between binge eating and emotional eating in a sample of overweight subjects. *Appetite,* 53**,** 418-421.

RICHMAN, R. M., LOUGHNAN, G. T., DROULERS, A. M., STEINBECK, K. S. & CATERSON, I. D. 2001. Self-efficacy in relation to eating behaviour among obese and non-obese women. *International Journal of Obesity,* 25**,** 907-913.

ROBBINS, R., GRANDNER, M. A., BUXTON, O. M., HALE, L., BUYSSE, D. J., KNUTSON, K. L., PATEL, S. R., TROXEL, W. M., YOUNGSTEDT, S. D., CZEISLER, C. A. & JEAN-LOUIS, G. 2019. Sleep myths: an expert-led study to identify false beliefs about sleep that impinge upon population sleep health practices. *Sleep Health*.

ROBERT BATSELL, W., BROWN, A. S., ANSFIELD, M. E. & PASCHALL, G. Y. 2002. "You Will Eat All of That!": A retrospective analysis of forced consumption episodes. *Appetite,* 38**,** 211-219.

ROBERTS, L. T., CARBONNEAU, N., GOODMAN, L. C. & MUSHER-EIZENMAN, D. R. 2020. Retrospective reports of childhood feeding in mother-daughter dyads. *Appetite,* 149**,** 104613.

ROBERTS, L. T., GOODMAN, L. C. & MUSHER-EIZENMAN, D. R. 2018. Parental correlates of food parenting practices: socioeconomic status, weight, and dieting status. *Ecology of Food and Nutrition,* 57**,** 330-345.

RODGERS, R. F., PAXTON, S. J., MASSEY, R., CAMPBELL, K. J., WERTHEIM, E. H., SKOUTERIS, H. & GIBBONS, K. 2013. Maternal feeding practices predict weight gain and obesogenic eating behaviors in young children: a prospective study. *International Journal of Behavioral Nutrition and Physical Activity,* 10**,** 24.

ROLLINS, B., SAVAGE, J., FISHER, J. & BIRCH, L. 2016. Alternatives to restrictive feeding practices to promote self-regulation in childhood: a developmental perspective. *Pediatric Obesity,* 11**,** 326-332.

ROSENKRANZ, R. R. & DZEWALTOWSKI, D. A. 2008. Model of the home food environment pertaining to childhood obesity. *Nutrition Reviews,* 66**,** 123-140.

ROYAL COLLEGE OF PSYCHIATRISTS. 2016. *Parental mental illness: the impact on children and adolescents: for parents and carers* [Online]. Available: https://www.rcpsych.ac.uk/mental-health/parents-and-young-people/information-for-parents-and-carers/parental-mental-illness-the-impact-on-children-and-adolescents-for-parents-and-carers [Accessed 20 March 2021].

RUBIO, B. & RIGAL, N. 2017. Parental concerns and attributions of food pickiness and its consequences for the parent–child relationship: A qualitative analysis. *Journal of Child Health Care,* 21**,** 404-414.

RUGGIERO, C. F., HOHMAN, E. E., BIRCH, L. L., PAUL, I. M. & SAVAGE, J. S. 2021. INSIGHT responsive parenting intervention effects on child appetite and maternal feeding practices through age 3 years. *Appetite,* 159**,** 105060.

RUSSELL, C. G., HASZARD, J. J., TAYLOR, R. W., HEATH, A. M., TAYLOR, B. & CAMPBELL, K. J. 2018. Parental feeding practices associated with children's eating and weight: What are parents of toddlers and preschool children doing? *Appetite,* 128**,** 120-128.

RUZICKA, E. B., DARLING, K. E. & SATO, A. F. 2020. Controlling child feeding practices and child weight: A systematic review and meta-analysis. *Obesity Reviews,* n/a.

RYAN, R., DAVIS-KEAN, P., BODE, L., KRÜGER, J., MNEIMNEH, Z. & SINGH, L. 2022. Parenting online: analyzing information provided by parenting-focused Twitter accounts. *Atlantic Journal of Communication***,** 1-17.

SALTZMAN, J. A., PINEROS-LEANO, M., LIECHTY, J. M., BOST, K. K., FIESE, B. H. & TEAM, S. K. 2016. Eating, feeding, and feeling: emotional responsiveness mediates longitudinal associations between maternal binge eating, feeding practices, and child weight. *The International Journal of Behavioral Nutrition and Physical Activity,* 13**,** 89-89.

SANDERS, M. R. & CALAM, R. 2016. Parenting Information and Advice and the Mass Media. *The Wiley Handbook of Developmental Psychology in Practice.*

SAVAGE, J. S. & BIRCH, L. L. 2017. WIC mothers' depressive symptoms are associated with greater use of feeding to soothe, regardless of perceived child negativity. *Pediatric Obesity,* 12**,** 155-162.

SAVAGE, J. S., FISHER, J. O. & BIRCH, L. L. 2007. Parental influence on eating behavior: conception to adolescence. *J Law Med Ethics,* 35**,** 22-34.

SCAGLIONI, S., ARRIZZA, C., VECCHI, F. & TEDESCHI, S. 2011. Determinants of children's eating behavior. *The American Journal of Clinical Nutrition,* 94**,** 2006s-2011s.

SCAGLIONI, S., DE COSMI, V., CIAPPOLINO, V., PARAZZINI, F., BRAMBILLA, P. & AGOSTONI, C. 2018. Factors Influencing Children's Eating Behaviours. *Nutrients,* 10.

SCHNURR, T. M., MORGEN, C. S., BORISEVICH, D., BEAUMONT, R. N., ENGELBRECHTSEN, L., ÄNGQUIST, L., HAVE, C. T., FREATHY, R. M., SMITH, G. D., NOHR, E. A., HANSEN, T. & SØRENSEN, T. I. A. 2020. The influence of transmitted and non-transmitted parental BMI-associated alleles on the risk of overweight in childhood. *Scientific Reports,* 10**,** 4806-4806.

SCHREMPFT, S., VAN JAARSVELD, C. H. M., FISHER, A., FILDES, A. & WARDLE, J. 2016. Maternal characteristics associated with the obesogenic quality of the home environment in early childhood. *Appetite,* 107**,** 392-397.

SCHWITZER, G., MUDUR, G., HENRY, D., WILSON, A., GOOZNER, M., SIMBRA, M., SWEET, M. & BAVERSTOCK, K. A. 2005. What are the roles and responsibilities of the media in disseminating health information? *PLoS Medicine,* 2.

SEDGWICK, P. 2014. Cross sectional studies: advantages and disadvantages. *BMJ,* 348.

SEMRUSH. 2020. *Most popular mother's lifestyle websites worldwide in May 2020, by site visits (in millions).* [Online]. Statista. Statista Inc. Available: https://www.statista.com/statistics/1125911/mom-lifestyle-website-traffic-worldwide/ [Accessed 24 January 2022].

SHLOIM, N., EDELSON, L. R., MARTIN, N. & HETHERINGTON, M. M. 2015. Parenting styles, feeding styles, feeding practices, and weight status in 4–12 year-old children: A systematic review of the literature. *Frontiers in Psychology,* 6**,** 1849.

SIEGENTHALER, E., MUNDER, T. & EGGER, M. 2012. Effect of preventive interventions in mentally ill parents on the mental health of the offspring: systematic review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry,* 51**,** 8-17. e8.

SILVENTOINEN, K. & KONTTINEN, H. 2020. Obesity and eating behavior from the perspective of twin and genetic research. *Neuroscience & Biobehavioral Reviews,* 109**,** 150-165.

SINGH, A. S., MULDER, C., TWISK, J. W., VAN MECHELEN, W. & CHINAPAW, M. J. 2008. Tracking of childhood overweight into adulthood: a systematic review of the literature. *Obesity Reviews,* 9**,** 474-488.

SKELTON, K., EVANS, R. & LACHENAYE, J. 2020. Hidden communities of practice in social media groups: Mixed methods study. *JMIR Pediatrics and Parenting,* 3**,** e14355.

SKOUTERIS, H., MCCABE, M., RICCIARDELLI, L. A., MILGROM, J., BAUR, L. A., AKSAN, N. & DELL'AQUILA, D. 2012. Parent–child interactions and obesity prevention: a systematic review of the literature. *Early Child Development and Care,* 182**,** 153-174.

SNOEK, H. M., ENGELS, R. C. M. E., JANSSENS, J. M. A. M. & VAN STRIEN, T. 2007. Parental behaviour and adolescents' emotional eating. *Appetite,* 49**,** 223-230.

SOMMER, A. & TWIG, G. 2018. The Impact of Childhood and Adolescent Obesity on Cardiovascular Risk in Adulthood: a Systematic Review. *Current Diabetes Reports,* 18**,** 91.

SPILL, M. K., CALLAHAN, E. H., SHAPIRO, M. J., SPAHN, J. M., WONG, Y. P., BENJAMIN-NEELON, S. E., BIRCH, L., BLACK, M. M., COOK, J. T., FAITH, M. S., MENNELLA, J. A. & CASAVALE, K. O. 2019. Caregiver feeding practices and child

weight outcomes: a systematic review. *The American Journal of Clinical Nutrition,* 109**,** 990S-1002S.

SPINKS, T. & HAMILTON, K. 2016. Investigating Mothers' Decisions to Give Their 2- to 3-Year-Old Child a Nutritionally Balanced Diet. *Journal of Nutrition Education and Behavior,* 48**,** 250-257.e1.

STEINSBEKK, S., BARKER, E. D., LLEWELLYN, C., FILDES, A. & WICHSTROM, L. 2018. Emotional Feeding and Emotional Eating: Reciprocal Processes and the Influence of Negative Affectivity. *Child Dev,* 89**,** 1234-1246.

STEPHENSON, J., SMITH, C. M., KEARNS, B., HAYWOOD, A. & BISSELL, P. 2021. The association between obesity and quality of life: a retrospective analysis of a large-scale population-based cohort study. *BMC Public Health,* 21**,** 1990.

STERN, A. F. 2014. The Hospital Anxiety and Depression Scale. *Occupational Medicine,* 64**,** 393-394.

STEVENS, J. 1996. *Applied Multivariate Statistics for the Social Sciences*, Lawrence Erlbaum Associates, Incorporated.

STIFTER, C. A., ANZMAN-FRASCA, S., BIRCH, L. L. & VOEGTLINE, K. 2011. Parent use of food to soothe infant/toddler distress and child weight status. An exploratory study. *Appetite,* 57**,** 693-9.

STRAUSS, R. S. & KNIGHT, J. 1999. Influence of the Home Environment on the Development of Obesity in Children. *Pediatrics,* 103**,** e85-e85.

SUAREZ-LLEDO, V. & ALVAREZ-GALVEZ, J. 2021. Prevalence of health misinformation on social media: systematic review. *Journal of Medical Internet Research,* 23**,** e17187.

SUGGS, L. S., DELLA BELLA, S., RANGELOV, N. & MARQUES-VIDAL, P. 2018. Is it better at home with my family? The effects of people and place on children's eating behavior. *Appetite,* 121**,** 111-118.

SUPTHANASUP, A., BANWELL, C., KELLY, M., YIENGPRUGSAWAN, V. S. & DAVIS, J. L. 2021. Child feeding practices and concerns: Thematic content analysis of Thai virtual communities. *Maternal & Child Nutrition,* 17**,** e13095.

SUTTER, C., PHAM, G. V., YUN, J. T., NARANG, K., SUNDARAM, H. & FIESE, B. H. 2021. Food parenting topics in social media posts: Development of a coding system, examination of frequency of food parenting concepts, and comparison across Reddit and Facebook. *Appetite,* 161**,** 105137.

SWYDEN, K., SISSON, S. B., MORRIS, A. S., LORA, K., WEEDN, A. E., COPELAND, K. A. & DEGRACE, B. 2017. Association Between Maternal Stress, Work Status, Concern About Child Weight, and Restrictive Feeding Practices in Preschool Children. *Maternal and Child Health Journal,* 21**,** 1349-1357.

TACCONELLI, E. 2010. Systematic reviews: CRD's guidance for undertaking reviews in health care. *The Lancet Infectious Diseases,* 10**,** 226.

TAMMINGA, M. A. & LIPOFF, J. B. 2021. Understanding sunscreen and photoprotection misinformation on parenting blogs: A mixed-method study. *Pediatric Dermatology,* 38**,** 88-91.

TAN, C. C., RUHL, H., CHOW, C. M. & ELLIS, L. 2016a. Retrospective reports of parental feeding practices and emotional eating in adulthood: The role of food preoccupation. *Appetite,* 105**,** 410-415.

TAN, C. C., RUHL, H., CHOW, C. M. & ELLIS, L. 2016b. Retrospective reports of parental feeding practices and emotional eating in adulthood: The role of food preoccupation. *Appetite,* 105**,** 410-5.

TAN, J.-S., LIU, N.-N., GUO, T.-T., HU, S. & HUA, L. 2021. Genetically predicted obesity and risk of deep vein thrombosis. *Thrombosis Research,* 207**,** 16-24.

TIGGEMANN, M. & LOWES, J. 2002. Predictors of maternal control over children's eating behaviour. *Appetite,* 39**,** 1-7.

TOZZI, F., SULLIVAN, P. F., FEAR, J. L., MCKENZIE, J. & BULIK, C. M. 2003. Causes and recovery in anorexia nervosa: The patient's perspective. *International Journal of Eating Disorders,* 33**,** 143-154.

TRUDE, A. C. B., BLACK, M. M., SURKAN, P. J., HURLEY, K. M. & WANG, Y. 2020. Maternal anxiety and diet quality among mothers and toddlers from low-income households. *Maternal & Child Nutrition,* 16**,** e12992.

TYLKA, T. L., ENELI, I. U., KROON VAN DIEST, A. M. & LUMENG, J. C. 2013. Which adaptive maternal eating behaviors predict child feeding practices? An examination with mothers of 2- to 5-year-old children. *Eating Behaviors,* 14**,** 57-63.

UDO, T. & GRILO, C. M. 2018. Prevalence and Correlates of DSM-5–Defined Eating Disorders in a Nationally Representative Sample of U.S. Adults. *Biological Psychiatry,* 84**,** 345-354.

UTTER, J., LARSON, N., BERGE, J. M., EISENBERG, M. E., FULKERSON, J. A. & NEUMARK-SZTAINER, D. 2018. Family meals among parents: Associations with nutritional, social and emotional wellbeing. *Preventive Medicine,* 113**,** 7-12.

VAN HOOFT, J., PATTERSON, C., LOF, M., ALEXANDROU, C., HILTON, S. & NIMEGEER, A. 2018. Media framing and construction of childhood obesity: a content analysis of Swedish newspapers. *Obesity Science & Practice,* 4**,** 4-13.

VAN STAPPEN, V., DE LEPELEERE, S., HUYS, N., LATOMME, J., VERLOIGNE, M., CARDON, G., ANDROUTSOS, O., MANIOS, Y., DE BOURDEAUDHUIJ, I. & DE CRAEMER, M. 2019. Effect of integrating a video intervention on parenting practices and related

parental self-efficacy regarding health behaviours within the Feel4Diabetes-study in Belgian primary schoolchildren from vulnerable families: A cluster randomized trial. *PLoS One,* 14**,** e0226131.

VAN STRIEN, T., FRIJTERS, J. E. R., BERGERS, G. P. A. & DEFARES, P. B. 1986. The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *International Journal of Eating Disorders,* 5**,** 295-315.

VAUGHN, A. E., TABAK, R. G., BRYANT, M. J. & WARD, D. S. 2013. Measuring parent food practices: a systematic review of existing measures and examination of instruments. *International Journal of Behavioral Nutrition and Physical Activity,* 10**,** 61.

VAUGHN, A. E., WARD, D. S., FISHER, J. O., FAITH, M. S., HUGHES, S. O., KREMERS, S. P., MUSHER-EIZENMAN, D. R., O'CONNOR, T. M., PATRICK, H. & POWER, T. G. 2016. Fundamental constructs in food parenting practices: a content map to guide future research. *Nutrition Reviews,* 74**,** 98-117.

VAUGHN, A. E., WARD, D. S., FISHER, J. O., FAITH, M. S., HUGHES, S. O., KREMERS, S. P. J., MUSHER-EIZENMAN, D. R., O'CONNOR, T. M., PATRICK, H. & POWER, T. G. 2015. Fundamental constructs in food parenting practices: a content map to guide future research. *Nutr Rev,* 74**,** 98-117.

VENTURA, A. K. & WOROBEY, J. 2013. Early influences on the development of food preferences. *Current Biology,* 23**,** R401-8.

VEREECKEN, C. A., KEUKELIER, E. & MAES, L. 2004. Influence of mother's educational level on food parenting practices and food habits of young children. *Appetite,* 43**,** 93-103.

VILLAREJO, C., FERNÁNDEZ-ARANDA, F., JIMÉNEZ-MURCIA, S., PEÑAS-LLEDÓ, E., GRANERO, R., PENELO, E., TINAHONES, F. J., SANCHO, C., VILARRASA, N., MONTSERRAT-GIL DE BERNABÉ, M., CASANUEVA, F. F., FERNÁNDEZ-REAL, J. M., FRÜHBECK, G., DE LA TORRE, R., TREASURE, J., BOTELLA, C. & MENCHÓN, J. M. 2012. Lifetime Obesity in Patients with Eating Disorders: Increasing Prevalence, Clinical and Personality Correlates. *European Eating Disorders Review,* 20**,** 250-254.

VOHS, K. D. & BAUMEISTER, R. F. 2016. *Handbook of self-regulation: Research, theory, and applications*, Guilford Publications.

VOLLMER, R. L. 2021. The relationship between parental food parenting practices & child eating behavior: A comparison of mothers and fathers. *Appetite,* 162**,** 105193.

VOLLMER, R. L., ADAMSONS, K., FOSTER, J. S. & MOBLEY, A. R. 2015. Association of fathers' feeding practices and feeding style on preschool age children's diet quality, eating behavior and body mass index. *Appetite,* 89**,** 274-281.

VOLLMER, R. L. & BAIETTO, J. 2017. Practices and preferences: Exploring the relationships between food-related parenting practices and child food preferences for high fat and/or sugar foods, fruits, and vegetables. *Appetite,* 113**,** 134-140.

WALKER, S. K. 2005. Use of a Parenting Newsletter Series and Other Child-Rearing Information Sources by Mothers of Infants. *Family and Consumer Sciences Research Journal,* 34**,** 153-172.

WALLER, G. & OSMAN, S. 1998. Emotional eating and eating psychopathology among non-eating-disordered women. *International Journal of Eating Disorders,* 23**,** 419-424.

WALSH, A., KEARNEY, L. & DENNIS, N. 2015a. Factors influencing first-time mothers' introduction of complementary foods: a qualitative exploration. *BMC Public Health,* 15**,** 939.

WALSH, A. D., HESKETH, K. D., HNATIUK, J. A. & CAMPBELL, K. J. 2019. Paternal self-efficacy for promoting children's obesity protective diets and associations with children's dietary intakes. *International Journal of Behavioral Nutrition and Physical Activity,* 16**,** 1-8.

WALSH, A. M., HAMILTON, K., WHITE, K. M. & HYDE, M. K. 2015b. Use of online health information to manage children's health care: a prospective study investigating parental decisions. *BMC Health Services Research,* 15**,** 1-10.

WARDLE, J. 1987. Eating style: a validation study of the Dutch Eating Behaviour Questionnaire in normal subjects and women with eating disorders. *Journal of Psychosomatic Research,* 31**,** 161-9.

WARDLE, J., CARNELL, S. & COOKE, L. 2005. Parental control over feeding and children's fruit and vegetable intake: how are they related? *Journal of the American Dietetic Association,* 105**,** 227-32.

WARDLE, J., CARNELL, S., HAWORTH, C. M. & PLOMIN, R. 2008. Evidence for a strong genetic influence on childhood adiposity despite the force of the obesogenic environment. *The American Journal of Clinical Nutrition,* 87**,** 398-404.

WARDLE, J., GUTHRIE, C. A., SANDERSON, S. & RAPOPORT, L. 2001. Development of the Children's Eating Behaviour Questionnaire. *The Journal of Child Psychology and Psychiatry and Allied Disciplines,* 42**,** 963-70.

WARDLE, J., SANDERSON, S., GUTHRIE, C. A., RAPOPORT, L. & PLOMIN, R. 2002a. Parental feeding style and the inter-generational transmission of obesity risk. *Obesity Research,* 10**,** 453-62.

WARDLE, J., SANDERSON, S., GUTHRIE, C. A., RAPOPORT, L. & PLOMIN, R. 2002b. Parental feeding style and the inter-generational transmission of obesity risk. *Obes Res,* 10**,** 453-462.

WATSON, H. J., O'BRIEN, A. & SADEH-SHARVIT, S. 2018. Children of Parents with Eating Disorders. *Current Psychiatry Reports,* 20**,** 101.

WATTS, A. W., BARR, S. I., HANNING, R. M., LOVATO, C. Y. & MÂSSE, L. C. 2018. The home food environment and associations with dietary intake among adolescents presenting for a lifestyle modification intervention. *BMC Nutrition,* 4**,** 3.

WEISS, J. A., TINT, A., PAQUETTE-SMITH, M. & LUNSKY, Y. 2016. Perceived self-efficacy in parents of adolescents and adults with autism spectrum disorder. *Autism,* 20**,** 425-434.

WENDT, V., BERGMANN, S., HERFURTH-MAJSTOROVIC, K., KEITEL-KORNDORFER, A., VON KLITZING, K. & KLEIN, A. M. 2015. Parent-child interaction during feeding or joint eating in parents of different weights. *Eating Behaviors,* 18**,** 131-6.

WHITAKER, K. L., JARVIS, M. J., BEEKEN, R. J., BONIFACE, D. & WARDLE, J. 2010. Comparing maternal and paternal intergenerational transmission of obesity risk in a large population-based sample. *The American Journal of Clinical Nutrition,* 91**,** 1560-1567.

WHITE, H. J., MEYER, C., PALFREYMAN, Z. & HAYCRAFT, E. 2022. Family mealtime emotions and food parenting practices among mothers of young children: Development of the Mealtime Emotions Measure for Parents (MEM-P). *Maternal & Child Nutrition,* 18**,** e13346.

WHO. 2016. *10 facts on obesity* [Online]. Available: http://www.who.int/features/factfiles/obesity/en/ [Accessed 16 December 2016].

WHO. 2017. *Facts and figures on childhood obesity* [Online]. Available: http://www.who.int/end-childhood-obesity/facts/en/ [Accessed 30 August 2018].

WHO. 2021. *Obesity and overweight* [Online]. Available: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight [Accessed 06 June 2022].

WHO. 2022. *Obesity* [Online]. Available: https://www.who.int/health-topics/obesity#tab=tab_1 [Accessed 06 June 2022].

WILCOX, C. R., BOTTRELL, K., PATERSON, P., SCHULZ, W. S., VANDREVALA, T., LARSON, H. J. & JONES, C. E. 2018. Influenza and pertussis vaccination in pregnancy: Portrayal in online media articles and perceptions of pregnant women and healthcare professionals. *Vaccine,* 36**,** 7625-7631.

WILLIAMS, J. E., HELSEL, B., GRIFFIN, S. F. & LIANG, J. 2017. Associations Between Parental BMI and the Family Nutrition and Physical Activity Environment in a Community Sample. *Journal of Community Health,* 42**,** 1233-1239.

WILLIS, T. A., GEORGE, J., HUNT, C., ROBERTS, K. P. J., EVANS, C. E. L., BROWN, R. E. & RUDOLF, M. C. J. 2014. Combating child obesity: impact of HENRY on parenting and family lifestyle. *Pediatric Obesity,* 9**,** 339-350.

WINDLE, G., HUGHES, D., LINCK, P., RUSSELL, I. & WOODS, B. 2010. Is exercise effective in promoting mental well-being in older age? A systematic review. *Aging & Mental Health,* 14**,** 652-69.

XIE, J., HE, Z., BURNETT, G. & CHENG, Y. 2021. How do mothers exchange parenting-related information in online communities? A meta-synthesis. *Computers in Human Behavior,* 115**,** 106631.

YEE, A. Z. H., LWIN, M. O. & HO, S. S. 2017. The influence of parental practices on child promotive and preventive food consumption behaviors: a systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity,* 14**,** 47.

YOUNG, M., COPPINGER, T. & REEVES, S. 2019. The Nutritional Value of Children's Menus in Chain Restaurants in the United Kingdom and Ireland. *Journal of Nutrition Education and Behavior,* 51**,** 817-825.

ZARYCHTA, K., KULIS, E., GAN, Y., CHAN, C. K. Y., HORODYSKA, K. & LUSZCZYNSKA, A. 2019. Why are you eating, mom? Maternal emotional, restrained, and external eating explaining children's eating styles. *Appetite,* 141**,** 104335.

ZHAO, G., FORD, E. S., DHINGRA, S., LI, C., STRINE, T. W. & MOKDAD, A. 2009. Depression and anxiety among US adults: associations with body mass index. *International Journal of Obesity,* 33**,** 257-266.

ZIAUDDEEN, N., PAGE, P., PENNEY, T. L., NICHOLSON, S., KIRK, S. F. & ALMIRON-ROIG, E. 2018. Eating at food outlets and leisure places and "on the go" is associated with less-healthy food choices than eating at home and in school in children: cross-sectional data from the UK National Diet and Nutrition Survey Rolling Program (2008-2014). *The American Journal of Clinical Nutrition,* 107**,** 992-1003.

ZIAUDDEEN, N., WILDING, S., RODERICK, P. J., MACKLON, N. S., SMITH, D., CHASE, D. & ALWAN, N. A. 2020. Predicting the risk of childhood overweight and obesity at 4–5 years using population-level pregnancy and early-life healthcare data. *BMC Medicine,* 18**,** 105.

ZIGMOND, A. S. & SNAITH, R. P. 1983. The hospital anxiety and depression scale. *Acta Psychiatry Scandinavia,* 67**,** 361-70.

Appendices

Appendix A: Email chain with permission to use Figure 2 from Vaughn et al. (2016)

Re: Permission to use figure from a paper for research thesis (Fundamental constructs in food parenting practices: a content map to guide futu...

Ward, Dianne Stanton <dsward@email.unc.edu>
To ● PATEL, CHLOE (PGR)

↩ Reply   ↩ Reply All   → Forward

Wed 06/07/2022 11:03

ⓘ This sender dsward@email.unc.edu is from outside your organization.

ⓘ You replied to this message on 06/07/2022 11:05.

Yes, Chloe, you may use the figure in your thesis. Amber took early retirement and no longer works at UNC. Good luck finishing your degree.

Dianne
Sent from my iPad

On Jul 6, 2022, at 5:55 AM, PATEL, CHLOE (PGR) <C.Patel.2@warwick.ac.uk> wrote:

You don't often get email from c.patel.2@warwick.ac.uk. Learn why this is important

Dear Professor Ward,

I have not been able to get in contact with Dr Vaughn (received an out of office message). I hope you can help me.

I am seeking formal permission to include the following material within the electronic version of my PhD thesis:

Figure 1 – Content map of food parenting practices

If you are not the rights holder for this material I would be grateful if you would advise me who to contact.

The thesis will be made available within the University of Warwick's online research repository (https://wrap.warwick.ac.uk). The repository is non-commercial and openly available to all.

Many thanks in advance.

Chloe Patel
PhD Candidate, WMG
University of Warwick

From: PATEL, CHLOE (PGR)
Sent: 06 July 2022 10:51
To: avaughn@email.unc.edu
Subject: Permission to use figure from a paper for research thesis (Fundamental constructs in food parenting practices: a content map to guide future research)

Dear Dr Vaughn

I am contacting you to seek permission to include the following material within the electronic version of my PhD thesis:

Figure 1 – Content map of food parenting practices

If you are not the rights holder for this material I would be grateful if you would advise me who to contact.

The thesis will be made available within the University of Warwick's online research repository (https://wrap.warwick.ac.uk). The repository is non-commercial and openly available to all.

Many thanks in advance.

Chloe Patel
PhD Candidate, WMG
University of Warwick

Appendix B: Comprehensive Feeding Practices Questionnaire (CFPQ; Musher-Eizenmann & Holub, 2007)

Please read each question or statement carefully and choose <u>ONE</u> response to each.

Child Control					
5. Do you let your child eat whatever s/he wants?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
6. At dinner, do you let this child choose the foods s/he wants from what is served?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
10. If this child does not like what is being served, do you make something else?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
11. Do you allow this child to eat snacks whenever s/he wants?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
12. Do you allow this child to leave the table when s/he is full, even if your family is not done eating?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
Emotion regulation					
7. When this child gets fussy, is giving him/her something to eat or drink the *first* thing you do?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
8. Do you give this child something to eat or drink if s/he is bored even if you think s/he is not hungry?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
9. Do you give this child something to eat or drink if s/he is upset even if you think s/he is not hungry?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
Encourage balance and variety					
13. Do you encourage this child to eat healthy foods before unhealthy ones?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
24. I encourage my child to try new foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

26. I tell my child that healthy food tastes good.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
38. I encourage my child to eat a variety of foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Environment					
14. Most of the food I keep in the house is healthy.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
16. I keep a lot of snack food (potato chips, Doritos, cheese puffs) in my house. R	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
22. A variety of healthy foods are available to my child at each meal served at home.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
37. I keep a lot of sweets (candy, ice cream, cake, pies, pastries) in my house. R	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Food as reward					
23. I offer sweets (candy, ice cream, cake, pastries) to my child as a reward for good behavior.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
36. I withhold sweets/dessert from my child in response to bad behavior.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
19. I offer my child his/her favorite foods in exchange for good behavior.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Involvement					
15. I involve my child in planning family meals.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
20. I allow my child to help prepare family meals.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
32. I encourage my child to participate in grocery shopping.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

Modeling					
44. I model healthy eating for my child by eating healthy foods myself.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
46. I try to eat healthy foods in front of my child, even if they are not my favorite.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
47. I try to show enthusiasm about eating healthy foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
48. I show my child how much I enjoy eating healthy foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Monitoring					
1. How much do you keep track of the sweets (candy, ice cream, cake, pies, pastries) that your child eats?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
2. How much do you keep track of the snack food (potato chips, Doritos, cheese puffs) that your child eats?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
3. How much do you keep track of the high-fat foods that your child eats?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
4. How much do you keep track of the sugary drinks (soda/pop) this child drinks?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
Pressure					
17. My child should always eat all of the food on his/her plate.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
30. If my child says, "I'm not hungry," I try to get him/her to eat anyway.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
39. If my child eats only a small helping, I try to get him/her to eat more.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

49. When he/she says he/she is finished eating, I try to get my child to eat one more (two more, etc.) bites of food.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Restriction for Health					
21. If I did not guide or regulate my child's eating, s/he would eat too much of his/her favorite foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
28. If I did not guide or regulate my child's eating, he/she would eat too many junk foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
40. I have to be sure that my child does not eat too much of his/her favorite foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
43. I have to be sure that my child does not eat too many sweets (candy, ice cream, cake, or pastries).	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Restriction for weight control					
18. I have to be sure that my child does not eat too many high-fat foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
27. I encourage my child to eat less so he/she won't get fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
29. I give my child small helpings at meals to control his/her weight.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
33. If my child eats more than usual at one meal, I try to restrict his/her eating at the next meal.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
34. I restrict the food my child eats that might make him/her fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

35. There are certain foods my child shouldn't eat because they will make him/her fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
41. I don't allow my child to eat between meals because I don't want him/her to get fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
45. I often put my child on a diet to control his/her weight.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Teaching about nutrition					
25. I discuss with my child why it's important to eat healthy foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
31. I discuss with my child the nutritional value of foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
42. I tell my child what to eat and what not to eat without explanation. R	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

Appendix C: Retrospective Comprehensive Feeding Practices Questionnaire (rCFPQ; Musher-Eizenmann & Holub, 2007)

Please read each question or statement carefully and choose <u>ONE</u> response to each.

Child Control					
5. Did your parent let you eat whatever you wanted as a child?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
6. At dinner, were you allowed to choose the foods you wanted from what is being served?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
10. If you did not like what is being served, did your parent make you something else?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
11. Did your parent allow you to eat snacks whenever you wanted?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
12. Did your parent allow you to leave the table when you were full, even if your family were not finished eating?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
Emotion regulation					
7. When you were fussy, is giving you something to eat or drink the *first* thing your parent did?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
8. Did your parent give you something to eat or drink if you were bored, even if s/he thought you were not hungry?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
9. Did your parent give you something to eat or drink if you were upset even if s/he thought you were not hungry?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○

Encourage balance and variety					
13. My parent encouraged me to eat healthy foods before unhealthy ones.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
24. My parent encouraged me to try new foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
26. My parent told me that healthy food tastes good.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
38. My parent encouraged me to eat a variety of foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Environment					
14. Most of the food kept in the house was healthy.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
16. My parent kept a lot of snack food (potato chips, Doritos, cheese puffs) in the house. **R**	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
22. A variety of healthy foods were available to me at each meal served at home.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
37. My parent kept a lot of sweets (candy, ice cream, cake, pies, pastries) in the house. **R**	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Food as reward					
23. My parent offered sweets (candy, ice cream, cake, pastries) to me as a reward for good behavior.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
36. My parent withheld sweets/dessert from me in response to bad behaviour.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
19. My parent offered me my favorite foods in exchange for good behavior.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Involvement					
15. My parent involved me in planning family meals.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
20. My parent allowed me to help prepare family meals.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

32. My parent encouraged me to participate in grocery shopping.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Modeling					
44. My parent modelled healthy eating to me by eating healthy foods themselves.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
46. My parent ate healthy foods in front of me, even if they were not my parent's favourite.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
47. My parent tried to show enthusiasm about eating healthy foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
48. My parent showed me how much they enjoy eating healthy foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Monitoring					
1. How much did your parent keep track of the sweets (candy, ice cream, cake, pies, pastries) that you ate?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
2. How much did your parent keep track of the snack food (potato chips, Doritos, cheese puffs) that you ate?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
3. How much did your parent keep track of the high-fat foods you ate?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
4. How much did your parent keep track of the sugary drinks (soda/pop) you drank?	Never ○	Rarely ○	Sometimes ○	Mostly ○	Always ○
Pressure					
17. My parent believed I should always eat all of the food on my plate.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

30. If I said, "I'm not hungry," my parent tried to get me to eat anyway.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
39. If I ate only a small helping, my parent tried to get me to eat more.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
49. When I said I was finished eating, my parent tried to get me to eat one more (two more, etc.) bites of food.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Restriction for Health					
21. My parent believed if they did not guide or regulate my eating, I would eat too much of my favorite foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
28. My parent believed if they did not guide or regulate my eating, I would eat too many junk foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
40. My parent believed that they have to be sure that I did not eat too much of my favorite foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
43. My parent believed they had to be sure that I did not eat too many sweets (candy, ice cream, cake, or pastries).	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Restriction for weight control					
18. My parent had to be sure that I did not eat too many high-fat foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
27. My parent encouraged me to eat less so I wouldn't get fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
29. My parent gave me small helpings at meals to control my weight.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

33. If I ate more than usual at one meal, my parent would try to restrict my eating at the next meal.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
34. My parent restricted the food I ate that might have made me fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
35. My parent believed there were certain foods I shouldn't eat because they would make me fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
41. My parent didn't allow me to eat between meals because they didn't want me to get fat.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
45. My parent often put me on a diet to control my weight.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
Teaching about nutrition					
25. My parent discussed with me why it's important to eat healthy foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
31. My parent discussed with me the nutritional value of foods.	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○
42. My parent told me what to eat and what not to eat without explanation. **R**	Disagree ○	Slightly disagree ○	Neutral ○	Slightly agree ○	Agree ○

Appendix D: Dutch Eating Behaviour Questionnaire (van Strien et al., 1986)

Please read each question carefully and choose <u>ONE</u> response to each.

1. If you have put on weight, do you eat less than you usually do?* *R*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
2. Do you try to eat less at mealtimes than you would like to eat?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
3. How often do you refuse food or drink offered because you are concerned about your weight?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
4. Do you watch exactly what you eat?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
5. Do you deliberately eat foods that are slimming?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
6. When you have eaten too much, do you eat less than usual in the following days?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
7. Do you deliberately eat less in order not to become heavier?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
8. How often do you try not to eat between meals because you are watching your weight?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
9. How often in the evening do you try not to eat because you are watching your weight?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○

10. Do you take into account your weight with what you eat?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
11. Do you have the desire to eat when you are irritated?* *E*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
12. Do you have a desire to eat when you have nothing to do?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
13. Do you have a desire to eat when you are depressed or discouraged?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
14. Do you have a desire to eat when you are feeling lonely?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
15. Do you have a desire to eat when somebody lets you down?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
16. Do you have a desire to eat when you are cross?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
17. Do you have a desire to eat when you are approaching something unpleasant to happen?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
18. Do you get the desire to eat when you are anxious, worried or tense?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○

19. Do you have a desire to eat when things are going against you or when things have gone wrong?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
20. Do you have a desire to eat when you are frightened?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
21. Do you have a desire to eat when you are disappointed?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
22. Do you have a desire to eat when you are emotionally upset?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
23. Do you have a desire to eat when you are bored or restless?*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
24. If food tastes good to you, do you eat more than usual? *Ext.*	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
25. If food smells and looks good, do you eat more than usual?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
26. If you see or smell something delicious, do you have a desire to eat it?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
27. If you have something delicious to eat, do you eat it straight away?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○

28. If you walk past the bakery do you have the desire to buy something delicious?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
29. If you walk past a snack bar or a café, do you have the desire to buy something delicious?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
30. If you see others eating, do you also have the desire to eat?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
31. Can you resist eating something delicious?***	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
32. Do you eat more than usual, when you see others eating?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○
33. When preparing a meal are you inclined to eat something?	Never ○	Rarely ○	Sometimes ○	Often ○	Very often ○

Appendix E: Eating Disorder Exam Questionnaire (EDEQ; Fairburn & Beglin, 1994)

The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all the questions.

Questions 1 to 12. Please circle ONE appropriate number on the right. Remember that the questions refer to the past four weeks (28 days) only.

	ON HOW MANY OF THE PAST 28 DAYS …….	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1	Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your shape or weight?	0	1	2	3	4	5	6
2	Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
3	Have you <u>tried</u> to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4	Have you <u>tried</u> to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5	Have you had a definite desire to have an <u>empty</u> stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6

		0	1	2	3	4	5	6
6	Have you had a definite desire to have a <u>totally flat</u> stomach?	0	1	2	3	4	5	6
7	Has thinking about <u>food, eating or calories</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8	Has thinking about <u>shape or weight</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9	Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10	Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11	Have you felt fat?	0	1	2	3	4	5	6
12	Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13-18: Please fill in ONE number in the spaces on the right. Remember that the questions only refer to the past four weeks (28 days).

OVER THE PAST FOUR WEEKS (28 DAYS) ……

13	Over the past 28 days, how many <u>times</u> have you eaten what other people would regard as an <u>unusually large amount of food</u> (given the circumstances)? ……………………
14	……On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)? ……………………
15	Over the past 28 days, on how many **DAYS** have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food <u>and</u> have had a sense of loss of control at the time)? ……………………
16	Over the past 28 days, how many <u>times</u> have you made yourself sick (vomit) as a means of controlling your shape or weight? ……………………
17	Over the past 28 days, how many <u>times</u> have you taken laxatives as a means of controlling your shape or weight? ……………………
18	Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat, or to burn off calories? ……………………

Questions 19-21: Please circle ONE appropriate number. <u>Please note that for these questions the term "binge eating" means</u> eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

19	Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)?	**No days**	**1-5 days**	**6- 12 days**	**13-15 days**	**16-22 days**	**23-27 days**	**Everyday**
	… Do not count episodes of binge eating	0	1	2	3	4	5	6
20	On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight?	**None of the times**	**A few of the times**	**Less then half**	**Half of the times**	**More than half**	**Most of the time**	**Every time**
	… Do not count episodes of binge eating	0	1	2	3	4	5	6
21	Over the past 28 days, how concerned have you been about other people seeing you eat?	**Not at all**		**Slightly**		**Moderately**		**Markedly**
	… Do not count episodes of binge eating	0	1	2	3	4	5	6

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	OVER THE PAST 28 DAYS ……	NOT AT ALL		SLIGHTLTY		MODERATELY		MARKEDLY
22.	Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
23.	Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
24.	How much would it upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6
25.	How dissatisfied have you felt about your weight?	0	1	2	3	4	5	6
26.	How dissatisfied have you felt about your shape?	0	1	2	3	4	5	6
27.	How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?	0	1	2	3	4	5	6
28.	How uncomfortable have you felt about others seeing your shape or figure (for example. In communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6

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Appendix F: Hospital Anxiety Depression Scale (HADS; Zigmond & Snaith., 1983)

Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983)				
Tick the box beside the reply that is closest to how you have been feeling in the past week.				
Don't take too long over your replies: your immediate is best.				

I feel tense or 'wound up':	A		I feel as if I am slowed down:	D	
Most of the time	3		Nearly all of the time	3	
A lot of the time	2		Very often	2	
Time to time, occasionally	1		Sometimes	1	
Not at all	0		Not at all	0	
I still enjoy the things I used to enjoy:	D		I get a sort of frightened feeling like 'butterflies in the stomach':	A	
Definitely as much	0		Not at all	0	
Not quite so much	1		Occasionally	1	
Only a little	2		Quite often	2	
Not at all	3		Very often	3	
I get a sort of frightened feeling like something awful is about to happen:	A		I have lost interest in my appearance:	D	
Very definitely and quite badly	3		Definitely	3	
Yes, but not too badly	2		I don't take as much care as I should	2	
A little, but it doesn't worry me	1		I may not take quite as much care	1	
Not at all	0		I take just as much care as ever	0	
I can laugh and see the funny side of things:	D		I feel restless as if I have to be on the move:	A	
As much as I always could	0		Very much indeed	3	
Not quite so much now	1		Quite a lot	2	
Definitely not so much now	2		Not very much	1	
Not at all	3		Not at all	0	

Worrying thoughts go through my mind:	A		I look forward with enjoyment to things:	D	
A great deal of the time	3		A much as I ever did	0	
A lot of the time	2		Rather less than I used to	1	
From time to time but not too often	1		Definitely less than I used to	3	
Only occasionally	0		Hardly at all	2	
I feel cheerful:	D		I get sudden feelings of panic:	A	
Not at all	3		Very often indeed	3	
Not often	2		Quite often	2	
Sometimes	1		Not very often	1	
Most of the time	0		Not at all	0	
I can sit at ease and feel relaxed:	A		I can enjoy a good book or radio or TV programme:	D	
Definitely	0		Often	0	
Usually	1		Sometimes	1	
Not often	2		Not often	2	
Not at all	3		Very seldom	3	

Appendix G: Weight Efficacy Lifestyle Questionnaire (WELQ; Clark et al., 1991)

<table>
<tr><td colspan="2" align="center">Weight Efficacy Lifestyle Questionnaire (Clark et al., 1991)

Please read each situation below. Using a scale of 0 (not confident) to 10 (very confident), decide how confident (or certain) you would be to resist overeating in that situation.
Write <u>ONE</u> number only that reflects how confident you feel about being able to successfully resist the desire to eat.</td></tr>
<tr><td colspan="2">0   10
Not at all 1   2   3   4   5   6   7   8   9 Very
confident   confident</td></tr>
<tr><td>I AM CONFIDENT THAT:</td><td>CONFIDENCE NUMBER</td></tr>
<tr><td>1. I can resist eating when I am anxious (nervous).</td><td></td></tr>
<tr><td>2. I can control my eating on the weekends.</td><td></td></tr>
<tr><td>3. I can resist eating even when I have to say "no" to others.</td><td></td></tr>
<tr><td>4. I can resist eating when I feel physically run down.</td><td></td></tr>
<tr><td>5. I can resist eating when I am watching TV.</td><td></td></tr>
<tr><td>6. I can resist eating when I am depressed (or down).</td><td></td></tr>
<tr><td>7. I can resist eating when there are many different kinds of food available.</td><td></td></tr>
<tr><td>8. I can resist eating even when I feel it's impolite to refuse a second helping.</td><td></td></tr>
<tr><td>9. I can resist eating even when I have a headache.</td><td></td></tr>
<tr><td>10. I can resist eating when I am reading.</td><td></td></tr>
<tr><td>11. I can resist eating when I am angry (or irritable)</td><td></td></tr>
<tr><td>12. I can resist eating when I am at a party.</td><td></td></tr>
<tr><td>13. I can resist eating even when others are pressuring me to eat.</td><td></td></tr>
<tr><td>14. I can resist eating when I am in pain.</td><td></td></tr>
<tr><td>15. I can resist eating just before going to bed.</td><td></td></tr>
<tr><td>16. I can resist eating when I have experienced failure.</td><td></td></tr>
<tr><td>17. I can resist eating even when high-calorie foods are available.</td><td></td></tr>
<tr><td>18. I can resist eating even when I think others will be upset if I don't eat.</td><td></td></tr>
<tr><td>19. I can resist eating when I feel uncomfortable.</td><td></td></tr>
<tr><td>20. I can resist eating when I am happy.</td><td></td></tr>
</table>

Appendix H: Study 5 - Example extract from a coded post

Coding labels	Post	Notes
Coping HCPs Fussy eating Fussiness Lack of appetite Food intake Worry Advice	<u>Someone stop me pulling my hair out. Gp couldn't give a hoot, can't get past the triage nurse who is determined the fairies will make him eat one day</u>. <u>Ds 2yo has been a fussy eater for ages</u>, we were down to less than 10 "safe" foods for a while, and none of them are particularly healthy but no one bothered as he was putting away a fair volume. Recently he had a d&v bug, forced fluid challenges (for several hours) and since leaving hospital <u>he's down to 1 (very occasionally 2) foods. Specific flavour of crisp and specific cereal. And will only eat a tiny amount of both</u>. He's tired, he can't sleep all night because he wakes up starving but will not eat anything else. <u>He won't take his milk any more either</u>, pretty sure it's due to nurses forcing it on him when he felt crap tbh. <u>Apparently he'll magically eat normally sometime.. I don't believe it. What the hell do you do?</u> He has obviously lost weight/dropped	Users emotions/coping skills HCP advice – (un)satisfactory? Fussy eating Child eating behaviours Concern about food intake Feeling at a loss

Fussy eating	centiles with the bug but hasn't been weighed for over year with covid restrictions. He's pretty much non verbal, so I can't ask him if he wants x or y as he literally won't answer or point or give any indication besides screaming and throwing himself about.. which neither answers the question or hints at what it is. <u>Won't eat wet things, won't use cutlery, won't eat if there's something visible he doesn't like.. follow my drift</u>. Other son is a human wheelie bin so I can't say it's my cooking or what's offered.	