

Spotlight on MSc Research

Are children really less fussy with food at nursery compared to at home?

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Fussy eating is a common concern in childhood, affecting between 27-50% of young children (Benjasuwantep, Chaithirayanon, & Eiamudomkan, 2013; Carruth, Ziegler, Gordon, & Barr, 2004). At the same time over one fifth children are overweight or obese by the time they reach school age (National Statistics, 2015). Problems with child eating behavior, such as fussy eating or childhood overweight, are a significant source of concern and stress for many parents but also present health issues for many children. For example, food fussiness is associated with poor growth (Xue et al., 2015) and later eating disorders (Marchi & Cohen, 1990). Whilst childhood overweight and obesity have been directly linked to middle-age mortality and a range of chronic diseases in adult life, children can also face immediate health consequences of obesity including high blood pressure, asthma and Type 2 diabetes (Ho, Garnett, & Baur, 2014; Rimmer, Rowland, & Yamaki, 2007). Given that eating behaviours and obesity track across childhood and into adulthood (Lipsky et al., 2015), it is imperative that we understand the predictors of child dietary-related health before children reach school age.

Most research on early child eating behavior has focused on parental reports of children's eating and the impact that different parental feeding practices can have on child food consumption. This research suggests that overly controlling feeding practices tend to be counterproductive. For example, pressuring children to eat has been associated with more unhealthy eating behaviours in longitudinal

research (Ellis, Galloway, Webb, Martz, & Farrow, 2016), whilst using one food as a reward to eat another food has been shown to lower children's liking of food that they are bribed to eat (see Holley, Farrow & Haycraft, 2017 for a review). Moreover, using food as a reward can predict emotional eating behavior longitudinally across childhood (Farrow, Haycraft & Blissett, 2015), and overtly restricting foods can lead to increased preference for those foods (Birch et al., 1980). Other practices such as encouragement to eat, teaching about nutrition, and modelling are thought to have positive effects on child food intake (Hendy & Raudenbush, 2000). Parents have a fundamental impact of the food choices and feeding practices used with preschool children, but at the same time increasing numbers of preschool children are also fed outside of the home, away from their primary caregivers. Changes in government legislation have supported the return of parents to the workplace, and 96% of eligible children in England now use preschool childcare, where they spend on average 21 hours per week (George & Hanson, 2007; Office for National Statistics, 2016). A child in full-time preschool care is likely to consume 20-25 meals or snacks there each week (Children's Food Trust, 2015).

Preschool staff are ideally placed to foster healthier eating behaviours with children yet surprisingly little is known about whether or how eating and feeding differs for children in nursery compared to when they are at home. The research that has been conducted suggests that nursery workers report using more positive feeding practices compared to parents such as encouragement to try new foods and modelling of

healthy foods (Elford & Brown, 2014; Johnson, Ramsay, Shultz, Branen, & Fletcher, 2013; Ventura & Birch, 2008) but this research does not account for differences between children, and there has been no research to date looking at whether nursery staff and parents differ in their use of feeding practices for the same children (i.e. paired reports). Using a cross-sectional paired participant design, this study aims to explore whether there are differences between parents and nursery keyworkers (the person responsible for the child's individual needs and for liaising between nursery and the child's parents) descriptions of feeding practices and eating behaviours for the same children in nursery compared to at home.

Methods

This was a cross-sectional quantitative survey using two structured questionnaires. Ethical approval was obtained from the School of Life and Health Sciences Ethics Committee at Aston University.

Participants

Parents of children over the age of 1 year were invited to participate in the study via letters which were sent home by interested nurseries or preschools in the Birmingham area, UK. Where caregivers agreed to take part, the child's keyworker was also invited to take part. In total 43 parent-keyworkers pairs participated. Mean parental age = 37 (SD =5.37); mean keyworker age = 31 (SD=7.56). There were 9 males and 34 female parents and 2 male and 40 female keyworkers. 67% of parents and 63% of keyworkers described their ethnicity as White. The average child's age was 36.5 months (SD=13.13) with 21 male and 22 female children (6 unknown). More meals were eaten at home (mean = 13 SD=4.01) than at nursery (mean = 7 SD = 3.56). However, all food eaten at nursery was provided by the nursery.

Measures

Parents and keyworkers completed the *Child Eating Behaviour Questionnaire* (CEBQ; Wardle, Guthrie, Sanderson, & Rapoport, 2001): a 35-item parent-rated questionnaire designed to measure eight dimensions of a child's eating behaviour. These 8 dimensions can be combined into two subscales "food approach" (which includes enjoyment of food, food responsiveness, desire to drink, and emotional overeating), and "food avoidance" (including satiety responsiveness, food fussiness, slowness in eating, and emotional undereating). They also completed the *Comprehensive Feeding Practices Questionnaire* (CFPQ; Musher-Eizenman and Holub, 2007): a measure of a range of different feeding practices used by caregivers, including pressure to eat, using food as a reward, restriction of food and modelling eating behaviour. The CFPQ for the keyworkers was adapted slightly, in that references to "my child" were changed to "the child," and "home" was changed to "nursery". Cronbach's alphas were run on the adapted scales (see Table 1) and only variables with alpha above .6 for both parents and keyworkers were included in the analyses because values below this are considered to indicate poor internal consistency (Bland & Altman, 1997; Glen, 2014; Peterson, 1994). The scales used were therefore involvement, using food as a reward, monitoring eating behavior, restriction of food for weight control reasons and modelling eating behavior.

Results

The mean scores reported in this study (Table 2) were in line with those reported in similar studies (Musher-Eizenman & Holub, 2007; Powell, Farrow, & Meyer, 2011). The majority of data was non-normally distributed, therefore Wilcoxon signed rank tests were used to explore differences in eating behavior and feeding practices between

Table 1
Cronbach's alpha values for sub-scales of the Child Eating Behaviour Questionnaire and Child Feeding Practices Questionnaire

	Cronbach's alpha	
	Parents	Key workers
<i>Child Eating Behaviour Questionnaire</i>		
<i>Food Approach</i>		
Food responsiveness	.73	.64
Emotional over-eating	.70	.70
Enjoyment of food	.88	.74
Desire to drink	.88	.77
<i>Food Avoidance</i>		
Satiety responsiveness	.70	.70
Slowness in eating	.62	.74
Emotional under-eating	.76	.63
Food fussiness	.93	.82
<i>Child Feeding Practices Questionnaire</i>		
Child control	.69	.32
Emotion regulation	.73	.53
Encourage balance and variety	.66	.50
Environment	.71	.38
Food as a reward	.79	.71
Involvement	.65	.73
Modelling	.77	.75
Monitoring	.91	.94
Pressure to eat	.60	.50
Restriction for health	.50	.68
Restriction for weight	.76	.66
Teaching about nutrition	.52	.73

parents and keyworkers.

As seen in Table 2, differences were found in perceptions of child eating behaviour with parents reporting significantly higher levels of both child food approach and child food avoidance behavior at home compared to the behaviours reported by keyworkers in nursery settings. Differences were also found in the feeding practices used by parents and keyworkers, with parents reporting

significantly more use of food as a reward, involvement, modelling, monitoring, and restriction for weight control than keyworkers. Keyworkers reported using more modelling healthy eating behavior compared to parents.

Discussion

The results indicate that parents describe their children as displaying significantly higher levels of food avoidance and food approach behaviours at home compared to the reports from keyworkers for children's eating behaviours in nursery. Parents also describe using significantly higher levels of overly controlling feeding practices compared to nursery keyworkers, specifically using food as a reward for good behavior and restriction of food for weight control. In contrast nursery keyworkers reported less involvement in meal planning and less monitoring of food choices which is perhaps unsurprising given their role in meal preparation; however, they also reported more modelling of healthy eating in nursery. These findings corroborate other research by Johnson et al., (2013) and Elford & Brown (2014) who found that nursery staff used modelling, encouragement to eat and monitoring behavior, but they are the first to take into account individual differences between children and to demonstrate these differences when using reports for the same children.

Further research is required to explore further whether the differences reported in feeding and eating between parents and keyworkers are perceived differences or whether they reflect real differences in children's experiences with food in these two respective settings. It may be that the experience of caring for many children at one time, and the absence of the parenting attachment, lowers the perception of fussiness for keyworkers. In comparison, parents often respond to feeding difficulties with anxiety, which may in turn increase the perception of concern (e.g. Coulthard & Harris, 2003). Or it may be that children are

Table 2

Wilcoxon Signed-rank test of the differences between parents and keyworkers on perceived child eating behaviors and feeding practices used at home compared to in nursery

	Parents	Keyworkers	Wilcoxon value
	Median(range)	Median(range)	
Food Approach	2.69(2.38)	2.63(1.93)	138.00*
Food Avoidance	2.81(2.70)	2.56(2.30)	202.50*
Food as a reward	3.00(4.00)	1.00(2.00)	18.50***
Involvement	3.67(4.00)	3.00(4.00)	170.50*
Modelling	4.25(2.50)	4.75(2.00)	494.50*
Monitoring	4.38(3.00)	4.25(4.00)	148.00*
Restriction for weight control	2.13(3.00)	1.43(1.75)	70.50***

* $p < .05$ ** $p < .01$ *** $p < .001$

genuinely less fussy in nursery settings where they are exposed to modelling from other children (which can influence food preferences, e.g. Hendy & Raudenbush, 2000), and have less opportunity to refuse food or demand alternatives. Further observational research is needed to shed light on these questions.

Although this is a small cross-sectional study with a relatively homogenous group, we hope that the findings will add to our understanding of how and why children may differ in their feeding experiences and eating behaviours across these two settings. Further observational research is needed to explore in more detail how children experience the feeding dynamic differently in nursery compared to at home, and which factors in these two settings impact upon their experiences with food and eating. Importantly, feeding practices appear to be less bound in reward and restriction in the nursery setting compared to at home, which may in turn explain why food approach and avoidant behaviours are also less evident. Greater nursery-home communication around food and feeding may help to support parents who are concerned about child eating behaviour or weight.

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