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Child and parent characteristics related to parental feeding practices. A cross-cultural examination in the US and France

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Abstract

Although cross-cultural research between France and the United States has contributed to our understanding of adult eating habits, no research to date has considered differences in the way that French and American parents feed their children. American mothers ($n = 59$) and fathers ($n = 38$) and French mothers ($n = 72$) and fathers ($n = 50$) provided information about the feeding practices that they use with their children. U.S. parents reported higher levels of non-nutritive feeding practices and child control over feeding, whereas French parents reported greater monitoring and restriction of their child's food intake for weight reasons. Feeding practices were linked to child Body Mass Index (BMI) in both socio-cultural contexts.

Keywords

Feeding practices; Preschool children; Socio-cultural factors; Parenting

Introduction

A parent's feeding practices and the way a child responds to these practices are a central and complex part of the daily interaction within the dyad (Satter, 1999). Research finds that parental feeding practices can be related to child eating behaviors (Birch & Davison, 2001; Swarr & Richards, 1996) and child weight status (Faith, Scanlon, Birch, Francis, & Sherry, 2004). Furthermore, given the relative stability of weight status from childhood into adulthood (Serdula et al., 1993), a focus on early experiences that are related to eating behaviors is especially useful.

In an effort to understand individual differences in eating behaviors, some research has considered socio-cultural factors that are related to this domain. Of this research, studies of differences between the US and France vis à vis eating habits and attitudes have been especially noteworthy (e.g., Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999). For example, cross-cultural work has established that compared to American adults, French samples have: smaller portion sizes (Rozin, Kabnick, Pete, Fischler, & Shields, 2003), increased consumption of certain foods (e.g., red wine, Renaud & de Lorgeril, 1992), and

consumption of a greater variety of foods (Drewnowski et al., 1996), all of which have been connected to healthier eating and weight outcomes in France than in the United States. Furthermore, Rozin et al. (1999) have established that considerable differences exist between French and American adults in their attitudes toward food. In general, French participants report taking more pleasure in food, and being less concerned about the negative health consequences of food than American participants. Rozin suggests that the reduced stress associated with eating in this socio-cultural context may convey health benefits to the French eater.

In contrast to this work with adults' eating behaviors and attitudes, relatively little is known about socio-cultural differences in how parents feed their children. Indeed, although some studies have compared feeding practices among various subgroups within the United States (e.g., Hughes et al., 2006; Anderson, Hughes, Fisher, & Nicklas, 2005), comparative research on this topic between the U.S. and other countries has been non-existent.

There are at least two lines of research that suggest that this may be an important oversight. First, evidence is accumulating to support the role of parental feeding practices in later eating and weight outcomes. For example, in a review of 22 studies on the topic, Faith et al. (2002) found that maternal restrictive feeding was related to child eating and weight outcomes [e.g., energy intake, child Body Mass Index (BMI)] in the majority of the reviewed studies. Given the relationships between feeding practices and child outcomes, an examination of socio-cultural underpinnings may be useful.

Second, differences in rates of childhood obesity between countries such as the US and France also support the view that comparative research on how parents feed their children might be fruitful. In 2000, 6.4% of 6–9 year old French children were obese (95th percentile for weight) and 20.6% were overweight (85th percentile; Rolland-Cachera et al., 2002). In contrast, using the same standards, 15.3% of 6–11 year old children in the United States were obese and 30.3% were overweight (Ogden, Flegal, Carroll, & Johnson, 2002). The large discrepancy in rates of childhood overweight between the US and France further highlights the need for an understanding of how parents in these two countries differ in their approaches to feeding.

Thus, the current study had two primary goals. The first was to examine socio-cultural differences between the U.S. and France in levels of various feeding practices. Some previous research on parental feeding practices has focused on just a few practices such as restrictive feeding and pressure to eat, which are typically measured with the Child Feeding Questionnaire (CFPQ, e.g., Francis, Scott, & Birch, 2001). But, other research has suggested that additional feeding practices, such as using food as a reward and modeling healthy eating behaviors, can be measured in parents (using the Comprehensive Feeding Practices Questionnaire) and might impact child outcomes (e.g., Musher-Eizenman & Holub, 2007). So, in the current study, nine subscales of the CFPQ were included to assess socio-cultural differences on a wide range of feeding practices. Because the CFPQ has not been used with a French sample, an assessment of the validity of this measure in the French sample was conducted prior to other analyses.

The second goal of this study was to explore the relationships between parent and child characteristics and parental feeding practices in both cultural contexts. Some research had linked parent demographic characteristics such as family income, parents' education, and parents' BMI and child characteristics (e.g., sex, age, and BMI) to the feeding practices that parents employ with their children (e.g., Baughcum et al., 2001; Jain et al., 2001; Spruijt-Metz, Lindquist, Birch, Fisher, & Goran, 2002). However, findings have been mixed and no one study has examined both a wide range of parent and child characteristics and a wide

range of feeding practices. The cross-cultural nature of the sample in this study allows for an examination of which parent and child characteristics may be related to feeding practices consistently across cultures and which relationships may be culturally specific.

Method

Participants

Two samples of parents (US and French) were included in the current study. Attempts were made to recruit from schools in the two countries that were similar on a range of demographic variables, detailed below. The first sample (US) was recruited from day cares and preschools in a mid-sized Midwestern city and the surrounding towns during the period between May 2004 and August 2004. The second sample (France) was recruited from schools in a large city and a small town in the Ile-de-France and Picardy regions of France between October 2005 and January 2006. In both the US and France about half of the sample was made up of rural/suburban families and the other half was urban families. Details about the demographic characteristics of both samples can be found in Table 1.

Procedure

In both countries, schools gave consent to participate. Parents of all children in the target age range were invited to complete the questionnaire. Parents also consented for their child to be weighed and measured at school. Mothers and fathers were instructed to complete the questionnaires independently and to return them to the schools in sealed envelopes. The participation rate in the US was 47% of mothers and 30% of fathers; for the French mothers and fathers, the response rate was 42% and 29%, respectively. The appropriate Human Subjects Review Board approved each data collection.

Measures

Parents in each of the samples completed an almost identical packet of questionnaires. All questionnaires that were not available in French were translated and then back translated into English (by a third party) to ensure that the meaning of the items had been retained.

Demographic information

Parents provided information about their birth date, their child's birth date, their ethnicity (or in France, the country of origin of themselves and their parents), their household income, their level of education, their height and weight. Children were weighed and measured at their schools by a trained experimenter.

Comprehensive Feeding Practices Questionnaire

Nine aspects of parental feeding behavior were measured by the Comprehensive Feeding Practices Questionnaire (CFPQ; Musher-Eizenman & Holub, 2007). These were monitoring the child's food intake (3 items), using food to regulate the child's emotions (3 items), using food as a reward (3 items), child control over feeding (5 items), teaching about nutrition (3 items), encouraging balance and variety (3 items), restricting child's food intake for weight reasons (8 items), restricting child's intake for health reasons (4 items), and modeling healthy eating (4 items). The psychometric properties of this measure have been demonstrated in US samples (Musher-Eizenman & Holub, 2007).¹

¹A copy of the complete measure in English or in French can be obtained from the first author.

Psychometric analysis procedure

To test the internal validity of the CFPQ in the French sample, we performed a multi-trait/multi-item analysis. The aim of the analysis was to verify that items were correlated with their assigned scales (convergent validity) and more correlated with their assigned scale than with the other eight scales (discriminant validity).

To examine socio-cultural differences in the extent to which parents reported use of the various feeding practices, differences between US and French samples were analyzed by Kruskal–Wallis tests. This non-parametric approach was chosen because of the non-normal distribution of many of the variables.

To understand how characteristics of parents (BMI, household income, education level) and children (BMI, age, sex,) were related to parental feeding practices, a series of linear regressions were run with ranked scores on each feeding practice as the dependent variable, and each demographic variable as the predictor. Subjects were classified into three groups for household income (<40,000€ 40,000–70,000€ and >70,000€ or the U.S. equivalents), and three groups for parental education (high school degree or less, college, graduate degree). These linear regressions were adjusted for country, except when there was a significant interaction between the explicative variable and country. In these cases, analyses were conducted separately in the US and in France.

Results

Validity of the CFPQ

To examine the convergent and discriminate validity of the items for the French sample, multi-trait/multi-item scaling analyses were conducted on mothers' and fathers' responses separately (Table 2). Item-scale convergent validity was determined by examining the corrected correlations of each item with its assigned scale (with the target item removed). A correlation of 0.4 or greater was used as the cutoff for convergent validity. Item-discriminant validity was determined by examining the correlation of each item with the other scales. A correlation at least 2 Standard Errors below the correlation of that item with its assigned scale was used as the cutoff for discriminant validity.

Overall, scales demonstrated reasonable validity for this sample. The weakest scale for both mothers and fathers was teaching about nutrition, suggesting that results concerning this scale should be interpreted cautiously. In the US sample, alpha coefficients were similar, ranging from 0.49 to 0.85 (mean = 0.72) for the mothers and from 0.53 to 0.91 (mean = 0.73) for the fathers.

Demographic comparability between samples

To examine the similarity of US and French families, differences in demographic variables were examined. The children in the French sample were older than the American sample (5.5 years vs 5.0 years, $p < 0.01$). In addition, the American parents reported higher BMI's than did the French parents (mothers: 24.4 kg/m² vs 21.4 kg/m², $p < .01$; fathers: 27.6 kg/m² vs 24.4 kg/m², $p < 0.01$). In contrast, the BMI of the children in the study did not differ across the two samples (16.1 kg/m² vs 15.8 kg/m², respectively, in the US and France, $p = 0.32$). There was not a significant difference by nation (both $\chi^2 > 0.10$) in the percentage of children above the 85th percentile BMI (US: 25%; France: 17%) or the 95th percentile (US: 9%; France: 3%).

Relationship between parent characteristics and child BMI

We next examined the relationship between the child's BMI and parental characteristics (BMI, income, and education) separately by country. In the US sample, there was a significant relationship between child's BMI and mother's BMI [Spearman $r(59) = 0.29$, $p < 0.05$]. However, child's BMI was not significantly related to father's BMI [Spearman $r(37) = 0.24$], parents' income [$F(2, 58) = 0.01$], or parents' education [$F(2, 58) = 1.06$; all p 's $> .10$]. In the French sample, child's BMI was not significantly related to mother's BMI [$r(70) = 0.13$], father's BMI [$r(50) = 0.19$], parents' income [$F(2, 68) = 0.38$], or parents' education [$F(2, 71) = 1.76$].

US–France differences in feeding variables

As can be seen in Table 3, US parents (mothers and fathers) reported higher levels of allowing children control over their own food intake, using food to regulate the child's emotions, and using food as a reward for behavior than French parents. American mothers reported higher levels of teaching their child about nutrition and encouragement of balance and variety. In contrast, French mothers and fathers both reported higher monitoring and higher restriction of their child's food intake for weight control than US parents, and French fathers reported greater modeling of healthy eating than US fathers.²

Relation of feeding practices to parent and child characteristics

Overall, very few relationships were found between parental characteristics and feeding practices. Education level was related to only one of the feeding practices (i.e., higher education was related to less use of food as a reward by mothers). Income was not significantly associated with any of the feeding practices. Relationships were somewhat stronger for parental BMI. In both countries, mothers with higher BMI's reported less teaching about nutrition and less encouragement of balance and variety. Higher BMI was associated with less modeling of healthy eating habits for both mothers and fathers. All comparisons can be seen in Table 4. Where significant, an odds ratio less than one indicates that the feeding practice was endorsed less by the second group in the comparison (e.g., endorsed less by the College group than by the High School group).

There were few relationships between parent feeding practices and either child age or sex (Table 5). Fathers of older children reported less use of food to regulate child's emotion. In contrast, child BMI was strongly linked with mothers' feeding practices. In both countries, higher child BMI was related to less teaching about nutrition, less encouraging of balance and variety, and more restriction for health reasons by the mother, as well as more restriction for weight by both parents. In the U.S., higher child BMI was related to greater use of food as a reward by mothers, whereas in France, higher child BMI was related to lower use of food as a reward by mothers.

Discussion

Given the existing theoretical and empirical literature on differences between the U.S. and France in the domain of food and eating habits in adults, the goal of this study was to explore the potential roots of these differences in the ways that parents in each country feed their children. Indeed, the data uncovered many such differences that are consistent with different prevalence rates of obesity in the two countries (Laurier, Guiguet, Chau, Wells, & Valleron, 1992), as well as, possibly, differences seen in attitudes toward food and body (Rozin et al., 1999). The cross-cultural differences were quite consistent for mothers and

²Because the two groups were significantly different in child age and parents' BMI, these analyses were also run controlling for these variables. In no case did this adjustment substantially change the results.

fathers, suggesting that these practices are informed by the larger culture in which the parents live (Rozin, 2007), and that children in turn, receive a fairly consistent message from parents about the role of food in their lives.

Parents in France reported higher monitoring as well as higher restriction of their child's food intake for weight reasons. In addition, French fathers reported more modeling of healthy eating habits for their children than did American fathers. It is possible that French culture assigns parents greater responsibility for the weight status and feeding of the child than does American culture, and that this difference results in more vigilant feeding practices. It is also possible that these feeding practices are linked to stronger norms within French society for acceptable body types for children. Future research is needed to explore these possibilities, as well as the possibility that parents' own eating habits function as an important mediator between cultural beliefs and the way in which parents feed their children (see Cutting, Fisher, Grimm-Thomas, & Birch, 1999).

In contrast, American parents indicated greater use of food for non-nutritive purposes (as a reward and to regulate the child's emotions). Use of food for non-nutritive purposes has been linked theoretically with a reduced ability to internally regulate one's own feelings of hunger and satiety (Carper, Fisher, & Birch, 2000). Furthermore, the foods used for these non-nutritive purposes may be energy dense, low nutrient foods. The increased availability of "junk" foods coupled with the undermined internal regulation of hunger occasioned by the high use of food in non-nutritive ways may be an important factor in the elevated rates of childhood obesity in the U.S. relative to their French counterparts. American parents also reported allowing their child more control over their own food choices. Although it could be argued that allowing a child to regulate their own eating behaviors is a positive practice, it is also possible that this serves to increase the extent to which children are eating preferred, but less nutritious, foods.

It is noteworthy that the US and French parents did not differ in the extent to which they restricted their child's food intake for health reasons (items such as "I have to be sure that my child does not eat too many sweets"). This supports the idea that restriction for health reasons may be different from restriction for weight reasons (items such as "I don't allow my child to eat between meals because I don't want him/her to get fat"). Furthermore, it suggests that restricting a child's consumption of unhealthy food may be more widely acceptable and practiced, whereas restriction for weight reasons may be more influenced by cultural norms and priorities.

The lack of relationships between parental socio-economic and anthropometric characteristics and feeding practices found in this study leaves an interesting question for future research to consider. It would be very useful to discover characteristics of parents that make them more or less inclined to use certain feeding practices. If this were known, interventions to modify feeding practices to optimize child health could be targeted toward specific subpopulations. Other parental characteristics to consider might include parents' own eating habits and body image, which may be more strongly related to how they feed their children than the parental characteristics considered here.

The results of this study did not suggest differential feeding practices for sons and for daughters, or for children of different ages within the preschool age range. On the other hand, there were a number of relationships between feeding practices and child BMI. Not surprisingly, child BMI was consistently related (for both mothers and fathers) with restrictive feeding (Francis et al., 2001; Keller, Pietrobelli, Johnson, & Faith, 2006). The causal nature of this relationship is not clearly understood. The first possibility is that restrictive feeding has a counter-productive effect, leading to increased liking of particular

foods and increased consumption of those foods when the opportunity arises (e.g., Birch & Davison, 2001; Jansen, Mulken, & Jansen, 2007). Some empirical data support this possibility. For example, Birch, Fisher, and Davison (2003) found that higher levels of restrictive feeding when the child was 5 years old predicted greater eating in the absence of hunger when the child was age seven. On the other hand, a second possibility for the link between parental feeding practices and child BMI is that characteristics of the parent or child promote certain feeding practices. Some empirical work also supports this possibility. For example, Keller et al. (2006) found that parents exhibit difference feeding practices toward a heavier child than toward a sibling with a lower BMI. Similarly, Duke, Bryson, Hammer, and Agras (2004) found that parental characteristics (such as hunger or history of eating disorders) measured when the child was born, predicted controlling feeding practices when the child was 7 years old. Finally, it is also possible that a third variable (such as parents' own eating habits) may be related to both their feeding practices and the child's BMI. Additional experimental and longitudinal work would shed further light on the complex interaction between child weight status and restrictive feeding practices.

Overall, the relationships between the feeding practices and the child and parent variables were strikingly similar for the French and American samples. This may in part be due to low power to detect differences that exist, but may also indicate similar processes at work in determining feeding practices in both France and the U.S. One intriguing difference between the two countries was that for French mothers, child BMI was negatively related to the use of food as a reward, whereas for American mothers, this relationship was positive. It is possible that heightened awareness of and concern about child overweight in France relative to the U.S. leads parents of heavier children to eliminate these potentially destructive practices, opting instead for non-food related behavior management strategies. On the other hand, American parents may attribute more importance to child behavior than child weight, and thus continue to use practices to which their children respond well, with high BMI children responding most favorably to food rewards.

It is very important to highlight that the samples in the current study are not intended to be representative of French and American families in general. For example, within any larger population, geographic and sub-cultural differences in eating and food-related practices are likely, as well as differences based on socio-economic status (e.g., Hughes et al., 2006; Olvera-Ezzell, Power, & Cousins, 1990). Nonetheless, the results of this study provide an intriguing first look at the ways in which parents' use of specific feeding practices differs according to the socio-cultural background of the parents. Larger studies with more representative samples should be conducted to explore these differences further.

Furthermore, although interesting cultural differences were found in the areas of teaching about nutrition, use of food as a reward, and use of food to regulate the child's emotions, the internal consistency of the items on these scales was somewhat lower than might be desired. Additional work to refine the measurement of these theoretically and empirically important constructs would clearly benefit research in this area.

Finally, as it is possible that cultural practices or beliefs are a key mechanism by which attitudes and behaviors regarding food are socialized in children, the links between these factors and outcomes should be considered. Specifically, given differing rates of overweight and obesity in various parts of the world, an important next step in this research is to explore how these differences in feeding practices relate to different eating and weight outcomes for the children.

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Table 1
Demographic characteristics of the U.S. and French samples

Variable	U.S.	France
Sample size (<i>n</i>)	59 mothers 38 fathers	72 mothers 50 fathers
Median Income (mother's report)	\$75,000–90,000	60,000–70,000€ ^a
Median education (mother's report)	College diploma	College diploma
Ethnicity/race	97% Caucasian	89% born in France 78% parents born in France
Children's age (years)	3.7–6.8	4.0–6.8
Range/mean	5.0	5.5
Children's sex	40% boys	49% boys

^a At the time of data collection 60,000€ was equal to \$75,000.

Table 2
Item-scale convergent validity and item-discriminant validity of mothers' and fathers' responses on the CFPQ in the French sample

<i>r</i> 's of items with assigned scale					<i>r</i> 's of items with other scales				
	Lowest	Highest	<i>n</i>	<i>n</i> > 0.4	Lowest	Highest	<i>n</i>	<i>n</i> > 2; S.E. lower ^a	
Restrictive practices									
Monitoring									
Mother	0.85	0.71	3	3	0.10	0.62	24	24	
Father	0.85	0.68	3	3	0.11	0.60	24	24	
Restriction for weight									
Mother	0.85	0.32	8	7	0.01	0.51	64	64	
Father	0.80	0.32	8	6	0.01	0.61	64	59	
Restriction for health									
Mother	0.71	0.35	4	3	0.01	0.33	32	31	
Father	0.65	0.38	4	3	0.01	0.30	32	32	
Non-nutritive uses of food									
Emotion regulation									
Mother	0.53	0.27	3	2	0.03	0.46	24	23	
Father	0.83	0.52	3	3	0.01	0.52	24	23	
Reward									
Mother	0.57	0.35	3	2	0.01	0.36	24	24	
Father	0.66	0.41	3	3	0.05	0.58	24	23	
Other feeding practices									
Child control									
Mother	0.67	0.36	5	4	0.01	0.56	40	37	
Father	0.61	0.27	5	2	0.01	0.47	40	34	
Teaching about nutrition									
Mother	0.54	0.19	3	1	0.02	0.49	24	21	
Father	0.56	0.26	3	1	0.03	0.75	24	21	
Encouraging bal/variety									
Mother	0.65	0.45	3	3	0.01	0.47	24	24	
Father	0.68	0.42	3	3	0.01	0.49	24	23	

		<i>r</i> 's of items with assigned scale			<i>r</i> 's of items with other scales			
		<i>n</i> > 0.4			<i>n</i> > 2; S.E. lower α			
		Lowest	Highest	<i>n</i>	Lowest	Highest	<i>n</i>	

Table 3
Mean scores of French and U.S. mothers and fathers on CFPQ subscales

Feeding practices	U.S.		France		² (1)
	Mean	S.D.	Mean	S.D.	
Restrictive practices					
Monitoring					
Mother	3.7	0.8	4.1	0.8	7.7
Father	3.5	0.6	4.0	0.8	11.4
Restriction weight					
Mother	1.7	0.6	2.3	0.7	20.3
Father	2.0	0.7	2.4	0.7	6.7
Restriction health					
Mother	3.1	1.1	3.2	0.9	0.1
Father	3.3	0.8	3.1	0.8	1.0
Non-nutritive uses of food					
Emotion regulation					
Mother	1.6	0.6	1.3	0.4	10.5
Father	1.9	0.6	1.4	0.5	14.7
Food as reward					
Mother	2.4	1.2	1.6	0.6	14.7
Father	2.6	0.9	1.7	0.7	16.1
Other feeding practices					
Child control					
Mother	2.8	0.5	2.1	0.6	34.1
Father	2.7	0.4	2.2	0.6	19.6
Teaching about nut.					
Mother	4.3	0.6	3.8	0.7	15.8
Father	3.6	0.7	3.7	0.7	0.3
Encouraging bal/variety					
Mother	4.3	0.5	4.1	0.6	7.0
Father	4.0	0.6	4.1	0.7	0.1

Feeding practices	U.S.	France		χ^2 (1)
		Mean	S.D.	
Modeling				
Mother	3.7	0.9	3.8	0.8
Father	3.1	1.0	3.6	.08
				5.4

Note. Bold face type highlights the higher of the two scores in the case of a significant Kruskal–Wallis difference ($p < 0.05$) between France and U.S.

Table 4
Odds ratio (OR) and 95% lower (LCL) and upper (UCL) confidence limits for the relation between parents' characteristics and feeding practices (adjusting for country)

Mothers' reports	Income			Education						BMI								
	Lowest vs. highest			Middle vs. highest			p<	High school vs. college			College vs. graduate			p<				
	OR	LCL	UCL	OR	LCL	UCL		OR	LCL	UCL	OR	LCL	UCL					
Mothers' reports																		
Restrictive practices																		
Monitoring	0.7	0.3	1.6	1.2	0.5	2.9	0.5	0.7	0.3	1.8	1.4	0.6	3.1	0.4	1.0	0.9	1.1	0.9
Restriction for weight	0.7	0.3	1.5	1.4	0.6	3.3	0.3	0.8	0.3	2.0	0.9	0.4	2.1	0.9	1.0	0.9	1.1	0.5
Restriction for health	0.7	0.3	1.7	1.1	0.5	2.5	0.8	1.3	0.5	3.4	1.2	0.5	2.7	0.9	1.0	0.9	1.1	0.9
Non-nutritive uses of food																		
Emotion regulation	1.8	0.8	4.2	2.3	1.0	5.6	0.2	1.8	0.7	4.6	0.9	0.4	2.1	0.5	1.0	0.9	1.1	0.5
Food as reward	0.5	0.2	1.2	1.6	0.7	3.8	0.1	0.3	0.1	0.9	0.3	0.1	0.7	0.01	0.9	0.9	1.0	0.3
Other feeding practices																		
Child control	1.9	0.8	4.5	1.3	0.5	3.0	0.4	1.8	0.7	4.8	0.7	0.3	1.6	0.3	1.0	0.9	1.1	0.6
Teaching about nutrition	0.6	0.3	1.4	1.3	0.5	3.2	0.3	0.4	0.1	1.0	0.4	0.2	1.0	0.1	0.9	0.8	1.0	0.05
Encouraging bal/variety	0.7	0.3	1.7	0.8	0.4	2.0	0.8	0.7	0.2	1.8	1.2	0.5	2.7	0.6	0.9	0.8	1.0	0.05
Modeling	0.7	0.3	1.5	1.2	0.5	2.8	0.5	0.4	0.2	1.2	1.5	0.7	3.5	0.1	0.9	0.8	1.0	0.05
Fathers' reports																		
Restrictive practices																		
Monitoring	0.3	0.1	0.9	0.7	0.2	1.8	0.2	0.1	0.0	0.7	0.6	0.2	1.6	0.1	1.0	0.9	1.1	0.9
Restriction for weight	1.0	0.3	3.0	0.7	0.3	1.8	0.8	0.8	0.2	3.0	0.6	0.2	1.6	0.6	1.1	1.0	1.3	0.1
Restriction for health	1.4	0.4	4.3	1.1	0.4	2.6	0.9	1.5	0.4	5.9	1.8	0.7	4.9	0.5	1.0	0.9	1.1	1.0
Non-nutritive uses of food																		
Emotion regulation	1.1	0.4	3.4	1.3	0.5	3.6	0.9	0.6	0.1	2.2	0.6	0.2	1.7	0.6	1.1	1.0	1.3	0.2
Food as reward	0.3	0.1	1.1	0.7	0.2	1.8	0.2	0.3	0.1	1.4	1.0	0.4	2.7	0.3	0.9	0.8	1.1	0.4
Other feeding practices																		
Child control	0.7	0.2	2.2	1.3	0.5	3.4	0.7	0.6	0.1	2.3	0.6	0.2	1.6	0.6	1.1	0.9	1.2	0.4
Teaching about nutrition	0.4	0.1	1.3	0.9	0.3	2.5	0.3	1.0	0.3	3.9	1.0	0.4	2.6	1.0	1.0	0.8	1.1	0.5
Encouraging bal/variety	0.8	0.3	2.6	1.2	0.4	3.2	0.9	0.9	0.2	3.5	0.6	0.2	1.7	0.7	1.0	0.8	1.1	0.5

Mothers' reports	Income			Middle vs. highest			High school vs. college			College vs. graduate			BMI		
	Lowest vs. highest			OR			OR			OR			OR		
	LCL			LCL			LCL			LCL			LCL		
	UCL			UCL			UCL			UCL			UCL		
Modeling	0.3	0.1	0.9	0.4	0.1	1.1	0.1	0.1	0.2	2.8	1.4	0.5	3.7	0.7	0.05

Note. All parameters in bold are significant at $p < 0.05$.

Table 5
Odds ratio (OR) and 95% lower (LCL) and upper (UCL) for the relationship between children's characteristics and parents' feeding practices (adjusting for country)

	Sex (boy)			Age			BMI					
	OR	LCL	UCL	p<	OR	LCL	UCL	p<	OR	LCL	UCL	p<
Mothers' reports												
Restrictive practices												
Monitoring	0.6	0.3	1.3	0.2	0.8	0.5	1.3	0.4	1.2	0.9	1.6	0.2
Restriction for weight	0.6	0.3	1.3	0.2	1.4	0.9	2.2	0.2	2.0	1.4	2.8	0.01
Restriction for health	0.5	0.3	1.1	0.1	1.3	0.8	2.0	0.3	1.7	1.2	2.2	0.01
Non-nutritive uses of food												
Emotion regulation	1.2	0.6	2.5	0.6	0.9	0.6	1.5	0.8	0.9	0.7	1.1	0.4
Food as reward	1.1	0.6	2.3	0.8	1.0	0.7	1.6	1.0				
United States									1.6	1.1	2.5	0.05
France									0.7	0.5	1.0	0.05
Other feeding practices												
Child control	1.3	0.7	2.7	0.5	0.9	0.6	1.4	0.7	1.0	0.8	1.2	0.9
Teaching about nutrition	0.9	0.5	1.9	0.9	1.1	0.7	1.8	0.7	0.7	0.6	1.0	0.05
Encouraging bal/variety	1.2	0.6	2.5	0.7	1.0	0.6	1.6	1.0	0.7	0.6	1.0	0.05
Modeling	1.8	0.9	3.6	0.2	1.0	0.6	1.6	1.0	0.9	0.7	1.1	0.4
Fathers' reports												
Restrictive practices												
Monitoring	0.5	0.2	1.2	0.2	1.3	0.8	2.3	0.3	1.0	0.7	1.3	0.8
Restriction for weight	1.0	0.4	2.3	1.0	1.1	0.6	1.9	0.7	1.6	1.1	2.2	0.01
Restriction for health	1.0	0.4	2.4	1.0	1.2	0.7	2.0	0.6	1.3	1.0	1.8	0.1
Non-nutritive uses of food												
Emotion regulation	1.0	0.4	2.4	1.0	0.5	0.3	0.9	0.05	1.2	0.9	1.7	0.2
Food as reward	1.1	0.5	2.6	0.9	0.9	0.5	1.6	0.8	1.2	0.8	1.6	0.4
Other feeding practices												
Child control	1.1	0.4	2.5	1.0	0.7	0.4	1.2	0.2	1.0	0.7	1.3	1.0
Teaching about nutrition	1.2	0.5	2.8	0.8	1.5	0.9	2.7	0.2	0.8	0.5	1.0	0.1

	Sex (boy)				Age				BMI			
	OR	LCL	UCL	p<	OR	LCL	UCL	p<	OR	LCL	UCL	p<
Encouraging bal/variety	1.7	0.7	4.0	0.3	0.9	0.5	1.6	0.8	0.8	0.6	1.1	0.2
Modeling	1.5	0.6	3.6	0.4	1.3	0.7	2.2	0.5	0.9	0.6	1.2	0.4

Note. All parameters in bold are significant at $p < 0.05$.