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# Child-feeding Practices and Child Overweight Perceptions of Family Day Care Providers Caring for Preschool-aged Children

Lynn S. Brann, PhD, RD

## ABSTRACT

**Introduction:** The purpose of this study was to evaluate the attitudes, feeding practices, and child overweight perceptions of family day-care providers caring for preschool-aged children and to examine whether child feeding practices differ based on child weight perceptions.

**Method:** One hundred twenty-three family day-care providers participated in this cross-sectional exploratory study and completed a self-administered survey measuring feeding attitudes and practices from the Child Feeding Questionnaire, demographic information, and self-reported height and weight. Participants selected a cut point to identify childhood overweight using male and female child figure drawings.

**Results:** Participants reported a high level of responsibility in feeding and monitoring of children's food intake. Differences were found in child feeding practices between family day-care providers based on their child weight perceptions for girls. Providers who selected the smaller girl figures as the cut point for overweight were more concerned about the children becoming overweight and used more restriction

in child feeding compared with the providers who selected the larger girl figures.

**Discussion:** Health professionals should continue working with this population to promote positive feeding environments. *J Pediatr Health Care.* (2010) 24, 312-317.

## KEY WORDS

Childcare providers, child-feeding practices, child overweight, perceptions

The high prevalence of childhood overweight has been well established (Ogden, Carroll, et al., 2006; Ogden, Carroll, & Flegal, 2008; Ogden, Flegal, Carroll, & Johnson, 2002). The rapid rise in the incidence of childhood overweight in a stable genetic population emphasizes the importance of environmental factors affecting this increase (Wardle, Carnell, Haworth, & Plomin, 2008). Family environmental influences, particularly parental influences, make up one component of the environment that has been evaluated in relation to the weight status of children. Parents influence the eating behaviors of children in a variety of ways; one important way is through their child-feeding practices (Davison & Birch, 2001; Ventura & Birch, 2008). Controlling child-feeding practices have been shown to have negative effects on children's ability to regulate their energy intake (Birch, Fisher & Davison, 2003; Fisher & Birch, 2002; Francis & Birch, 2005). Researchers have found significant relationships between children's weight and parents' child-feeding practices (Brann & Skinner, 2005; Faith, Scanlon, Birch, Francis, & Sherry, 2004; Fisher & Birch, 1999; Francis, Hofer, & Birch, 2001; Keller, Pietrobelli, Johnson, & Faith, 2006;

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Conflicts of interest: None to report.

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Matheson, Robinson, Varady, & Killen, 2006; Ogden, Reynolds, & Smith, 2006; Powers, Chamberlin, van Schaick, Sherman, & Whitaker, 2006; Spruitz-Metz, Lindquist, Birch, Fisher, & Goran, 2002), particularly with respect to restriction of certain types of food and pressure on children to eat more food.

Much of the research regarding child-feeding practices has focused on parental influences on preschool children, yet some of the responsibility of child feeding has shifted to childcare providers (Nicklas et al., 2001; Story, Kaphingst, & French, 2006). Less attention has been focused on examining the child-feeding practices of caregivers in childcare settings. United States Census data indicate that 11.6 million children younger than 5 years of age attend some form of regular childcare (Overturf Johnson, 2005). Researchers have begun to examine the food environments of children, primarily in organized childcare facilities (Ball, Benjamin, & Ward, 2008; Benjamin, Neelon, Ball, Bangdiwala, Ammerman, & Ward, 2007). Hughes and colleagues (2007) evaluated childcare providers' feeding styles (authoritarian, authoritative, indulgent, and uninvolved) on dietary intake of children in Head Start and found certain feeding styles to be positively associated with children's food consumption (e.g., authoritative feeding behaviors were positively associated with the children's dairy intakes).

Family day care, where a child is cared for in a provider's home, is one type of childcare setting that has not been adequately assessed by nutrition researchers. Previous reports have indicated that children of employed mothers spend on average 34 hours per week in family day care settings (Overturf Johnson, 2005). Limited data exist evaluating the dietary intake of children in family day care (Crepinsek, Burstein, Lee, Kennedy, & Hamilton, 2002), and no studies were found that examined child feeding practices of family day care providers.

Researchers have examined parents' perceptions of their children's weight status (Jeffery, Voss, Metcalf, Alba, & Wilkin, 2005; Maynard, Galuska, Blanck, & Serdula, 2003; Sherry et al, 2004), but no studies were found to examine these perceptions among family day care providers. Researchers have found that parents' perceptions of their overweight children are not always accurate (Jeffery et al., 2005; Maynard et al., 2003). Jeffery et al. (2005) found that only one quarter of parents identified their overweight children

as overweight, and parents in this study were more likely to recognize their daughters as overweight compared with their sons.

The primary objectives of this research study were to gain a deeper understanding of the child-feeding practices of family childcare providers caring for children ages 2 to 5 years, with emphasis on the behaviors that involve control in child feeding, and to examine perceptions of childhood overweight. An additional objective was to examine whether child-feeding practices differed based on child weight perceptions.

## METHODS

### Participants

Two hundred ninety-eight family day care providers who were registered with the childcare resource and referral agency in Onondaga County in central New York were recruited to participate in the study. The study questionnaire and consent form were mailed to participants. They were provided with a postage-paid envelope to return the materials to the researcher. Participants who returned the questionnaires were mailed a \$10 gift card to a bookstore as compensation for their time and effort. The study was approved by the Syracuse University Institutional Review Board for research involving human subjects, and all family day care providers provided informed consent.

### Family Day Care Providers' Questionnaire

The first part of the questionnaire assessed demographic and background information of the participants. Family day care providers reported the number of children and the ages of the children in their care. Other data gathered included the family day care providers' age, family income, race/ethnicity, highest education level attained, and self-reported height and weight. Self-reported heights and weights were used to calculate the body mass index (weight in kilograms/height in square meters) of the participants to examine the weight status of the providers (National Heart Lung Blood Institute [NHLBI], 1998).

The second part of the questionnaire addressed child-feeding attitudes and practices. Family day care providers completed five factors of the Child Feeding Questionnaire (Birch et al., 2001) to assess their beliefs, attitudes, and practices in relation to child feeding, particularly in relation to control over feeding and weight status of children. The five factors measured were perceived responsibility in child feeding (three items), concern about child weight (three items), restriction of child's food intake (eight items), pressure to eat (four items), and monitoring (three items). A Likert scale is used with questions that make up these factors, with potential responses ranging from 1 to 5. Higher scores represent a greater tendency toward these feeding attitudes and practices (e.g., 5 = always agree; very concerned). The internal consistencies (Cronbach's  $\alpha$ ) for

this study for responsibility, concern, restriction, pressure to eat, and monitoring were 0.83, 0.83, 0.70, 0.70, and 0.77, respectively. The Child Feeding Questionnaire was designed to examine parental practices; therefore, slight modifications to the wording of the questions were made to reflect practices of family day care providers (rather than parents) with the preschool-aged children in their care.

To assess the family day care providers' perceptions of childhood overweight, the participants were asked to evaluate two sets of figure drawings of young children (boys and girls separately) (Collins, 1991). These seven drawings range from very thin silhouettes (Figure 1) to very heavy silhouettes (Figure 7) and have been used in a study to assess childhood overweight perceptions of mothers of preschool-aged children (Sherry et al., 2004). Participants were asked to select the drawing that represents the cut point to identify a child as overweight; therefore, the child figure selected and those above it would be considered overweight.

### Data Analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences, Version 16.0 (SPSS, Inc., Chicago, IL). Descriptive statistics, including means, standard deviations, ranges, and frequencies were computed for variables of interest. Spearman's rank correlations were used to examine relationships between the demographic/background variables and the child-feeding practices of family day care providers. Because the child feeding practices variables were ordinal and not normally distributed, the Kruskal-Wallis test was used to evaluate whether differences existed in child-feeding practices based on family day care providers' perceptions of child overweight. The Mann-Whitney U test was used to determine which groups were significantly different.

### RESULTS

One hundred twenty-eight family day care providers completed and returned the questionnaires (response rate = 43%). Data for five of the 128 participants were excluded from analyses because they reported only caring for children older or younger than preschool age (defined in this study as children ages 2 to 5 years). Demographic information of the family day care providers is included in Table 1. Eighty-four percent (n = 103) of the family day care providers were White, while the remaining providers were African American (n = 13), Hispanic (n = 2), and American Indian (n = 1). Five providers had missing data for race/ethnicity. On average, the family day care providers were classified as overweight (body mass index  $\geq 25$ ).

Table 1 also shows the feeding attitudes and practices used by the family day care providers. Family day care providers reported a high level of responsibility for feeding and monitoring the types of foods eaten by

**TABLE 1. Demographic data and child feeding practices of family day care providers (n = 123)**

Demographic information	Mean $\pm$ SD or % based on data presented
No. of children in their care	6.6 $\pm$ 3.0
Average age of children (y)	4.5 $\pm$ 1.5
Provider's body mass index (kg/m <sup>2</sup> )	27.0 $\pm$ 7.7
Education level (%)	
Some high school	4
High school graduate	23
Some college	43
College graduate	28
Graduate school	2
Age of day care provider (y) (%)	
20-30	11
31-40	34
41-50	27
51-60	23
> 60	5
Average household income (%)	
<\$20,000	13
\$20,001-\$40,000	29
\$40,001-\$60,001	40
\$60,001-\$80,000	12
>\$80,001	6
<b>Child Feeding Questionnaire*</b>	<b>Mean <math>\pm</math> SD</b>
Responsibility in feeding	4.7 $\pm$ 0.62
Concern about child weight	2.5 $\pm$ 1.31
Restriction of food intake	3.4 $\pm$ 0.67
Pressure to eat	2.8 $\pm$ 1.03
Monitoring of food intake	4.6 $\pm$ 0.68

*SD, standard deviation.*  
*\*Potential responses to the questions of the Child Feeding Questionnaire range from 1 to 5, with higher scores representing a greater tendency toward these feeding attitudes and practices (Birch et al., 2001).*

the children in their care. In terms of restricting food intake and pressuring children to eat more food, providers neither agreed nor disagreed about using these practices. They conveyed some concern about the children's weight and risk of becoming overweight.

Correlations between the demographic information and child-feeding practices are shown in Table 2. A statistically significant inverse relationship was found between family day care providers' level of education and pressuring children to eat more food ( $r = -0.27$ ,  $P < .01$ ). A significant positive relationship was found between restriction of particular foods (primarily energy-dense snack foods) and concern about child weight ( $r = 0.53$ ,  $P < .01$ ). Also, pressure to eat more food and concern about child weight were significantly positively associated ( $r = 0.27$ ,  $P < .010$ ).

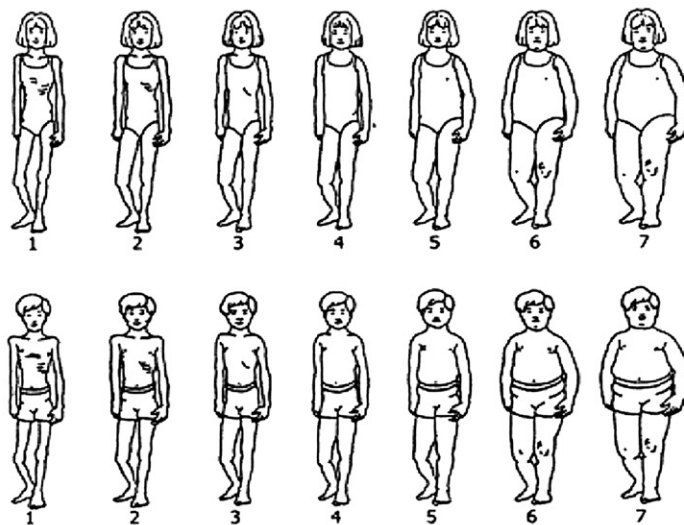
Most family day care providers chose a figure representing an above average-sized boy and girl as a cut point for overweight (Figure). Because of the limited selection of the first three and the seventh child figures from the figure drawings used to assess child overweight perceptions, data were collapsed into three

**TABLE 2. Correlations between demographic information of family day care providers and their child-feeding practices**

	1	2	3	4	5	6	7	8	9	10
1. No. of children	1.00									
2. Education	0.13	1.00								
3. Age	0.06	-0.16	1.00							
4. Income	0.25†	0.13	-0.06	1.00						
5. Body mass index	-0.13	-0.07	0.20*	-0.19*	1.00					
6. Responsibility	-0.03	0.04	-0.03	-0.15	-0.10	1.00				
7. Concern	-0.04	-0.11	0.14	-0.06	0.09	0.10	1.00			
8. Restriction	-0.04	-0.13	0.10	-0.13	0.04	0.20*	0.53†	1.00		
9. Pressure to eat	-0.15	-0.27†	-0.01	-0.15	0.03	0.03	0.27†	0.23*	1.00	
10. Monitoring	0.09	-0.03	-0.08	-0.11	-0.12	0.23*	0.05	0.19*	0.04	1.00

\*P < .05.  
†P < .01.

**FIGURE. Frequency and percentage of family day care providers selecting boy and girl figures that represent the cut point for overweight. Body figure perceptions and preferences among preadolescent children, Vol. 10, No. 2, 1991, page 201. Copyright 1991. Reprinted with permission of John Wiley & Sons, Inc.**



Frequency (and percentage) of family day care providers selecting cut point for overweight

	Sample (n)	Child #3	Child #4	Child #5	Child #6	Child #7
Boy figure	123	1 (1)	17 (14)	52 (42)	50 (41)	3 (2)
Girl figure	123	1 (1)	16 (13)	54 (44)	48(39)	4 (3)

groups. Selections of child three and child four were combined (no providers selected the first and second figures as a cut point for overweight for boys or girls), selection of child five remained its own category, and selections for child six and seven were combined.

No significant differences were found in child-feeding practices between family day care providers based on their child-weight perceptions for boys. Based on the weight perceptions for girls, a statistically significant difference was found between groups for concern about child weight ( $H = 7.50, P = .024$ ). Providers who

selected the smaller girl figures (Figures 3 and 4) as the cut point for overweight reported significantly more concern about the children in their care becoming overweight compared with the providers who selected the larger child figures (Figures 6 and 7) as the cut point for overweight ( $U = 235.0, P < .004$ ). Additionally, a statistically significant difference was found between groups for restriction ( $H = 6.65, P = .036$ ). Those that selected the smaller girl figures reported using more restriction in child feeding compared with providers who selected the larger girl figures ( $U = 257.5, P = .010$ ).

## DISCUSSION

Compared with research studies evaluating parents' child-feeding practices with preschool-aged children (Carnell & Wardle, 2007; Keller et al., 2006) and with children 5 years and older (Birch et al., 2001; Brann & Skinner, 2005; Spruitz-Metz et al., 2002), family day care providers reported greater responsibility in feeding and monitoring of food intake with the preschoolers in their care. Results from the restriction, monitoring, and pressure to eat factors of the Child Feeding Questionnaire are very similar to those reported by Blissett and Haycraft (2008) with mothers of preschool-aged children in the United Kingdom. Keller et al. (2006) found similar results for restriction and pressure to eat; however, a large sample of mothers of 3- to 5-year-old children reported using these feeding practices less frequently (Carnell & Wardle, 2007).

In a review of the literature on parent-child feeding practices and child weight status, Faith and colleagues (2004) found that parental feeding restriction was consistently positively associated with child weight status. This finding is similar to the findings with family day care providers in relation to their concern for the children in their care becoming overweight and in their selection of an overweight girl figure. Contrary to previous findings with parents (Brann & Skinner, 2005; Keller et al., 2006), pressure to eat more food was positively related to concern for child overweight among family day care providers. Perhaps this finding was due to the providers' attitude toward pressuring the children to eat more nutritious foods.

Sherry et al. (2004) found that a majority of mothers of preschool-aged children chose the sixth figure as the cut point for overweight for preschool-aged children, whereas in this study, the cut point was fairly equally distributed between the fifth and sixth figure (with the seventh representing the largest), suggesting a preference for a smaller body size as a cut point for overweight among these family day care providers. Interestingly, the cut point for overweight chosen for boy and girl figures was very similar.

Differences were found in concern for child overweight and restriction of food intake when providers were divided by their child overweight perceptions based on only the girl figures. These differences may reflect the societal ideal for thinness in females (Polivy & Herman, 2004). Controlling child-feeding practices, such as restriction, have been found among mothers of daughters who were concerned about their daughters' weight (Francis et al., 2001).

The current exploratory study is limited by the convenience sample of family day care providers and cannot be generalized to the larger population. Additionally, the family day care providers who responded to the study were mainly White. The data collected were self-reported and not observational, which may have led to response bias among the family day care

providers. The child figure drawings used in this study cannot be linked to a specific child body mass index percentile, limiting the ability to analyze child overweight cut points with national standards. The cross-sectional nature of this study does not allow for evaluation of causality in the relationship between child-feeding practices and child weight perceptions. Also, childcare providers were asked to respond to the questionnaire based on the preschool-aged children in their care. It is possible that different feeding attitudes and practices are used with different children, and this factor is not deciphered in this study. In spite of these limitations, this is the first study to examine child-feeding practices and weight perceptions with family home day care providers. This

population is important to target in order to improve the nutrition environment of preschool-aged children.

Future research should examine the child-feeding attitudes and practices of childcare providers, including family day care providers, longitudinally to determine the practices that are most beneficial to child health and weight. Determining the feeding attitudes and practices of childcare providers from diverse populations that promote child diet quality is an important next step to enhancing child health. Additionally, researchers should examine the overall nutrition environment, including child-feeding practices, in family day care settings, similar to the recent work of Benjamin and colleagues (2007) in childcare centers.

**Future research should examine the child-feeding attitudes and practices of childcare providers, including family day care providers, longitudinally to determine the practices that are most beneficial to child health and weight.**

## CONCLUSIONS

Limited data exist regarding the child-feeding attitudes and practices and child weight perceptions of childcare providers, specifically family day care providers. Family day care providers participating in this study reported a high level of responsibility for the feeding of the preschool children in their care and play a part in shaping the food environment of these young children. This population is an important one for health professionals to work with to support positive feeding environments. Pediatric nurse practitioners can partner with registered dietitians and childcare resource and referral agencies to support sound child-feeding practices and promote awareness of child overweight, with

emphasis on evidence-based practices to promote adequate growth and health.

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