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# Providers perspectives on self-regulation impact their use of responsive feeding practices in child care

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# Providers perspectives on self-regulation impact their use of responsive feeding practices in child care

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*At the time the data was collected, D. A. Dev was a doctoral student in the Division of Nutritional Sciences, University of Illinois at Urbana-Champaign.*

## Abstract

Supporting children's self-regulation in eating through caregivers' practice of responsive feeding is paramount to obesity prevention, and while much attention has been given to supporting children's self-regulation in eating through parents' responsive feeding practices in the home setting, little attention has been given to this issue in childcare settings. This qualitative study examines childcare providers' perspectives on using responsive feeding practices with young children (2–5 years). Individual semistructured interviews were conducted with providers until saturation was reached. Data was analyzed using thematic analysis. The final sample included 18 providers who were employed full-time in Head Start or state-licensed center-based childcare programs, cared for children (2–5 y), and were directly responsible for serving meals and snacks. Providers were primarily (67%) employed in childcare programs that served children from low-income families and received reimbursement for meals and snacks from the US Department of Agriculture's Child and Adult Care Food Program. Three factors emerged that shaped childcare providers' experiences using responsive feeding practices: *the providers' perspectives about whether or not young children can self-regulate food intake, their understanding of Child and Adult Care Food Program (CACFP) portion size regulations, and the availability of food at the center where they worked.* Future research should examine how childcare providers' understanding of children's ability to self-regulate their food intake, the appropriate use of the CACFP regulations in relationship to serving sizes, and having food available to offer seconds promotes providers' use of responsive feeding practices in center-based childcare programs and children's dietary behaviors

**Keywords:** Responsive feeding, Self-regulation, Childcare, Nutrition, Obesity

## 1. Introduction

The prevalence of childhood obesity is a global concern (Ogden, Carroll, Kit, & Flegal, 2014). As a result, much attention is given to childhood obesity prevention (Barlow, 2007), and early childhood is recognized as a pivotal time to establish healthy behaviors (Miller et al., 2012). One target for obesity prevention efforts is children's self-regulation of energy intake (French, Epstein, Jeffery, Blundell, & Wardle, 2012) and more specifically, how caregiver responsive feeding practices can support

children's self-regulation of energy intake (Institute of Medicine (IOM), 2011). Responsive feeding practices include reinforcing and respecting children's internal signals of hunger and satiety to support children's self-regulation of energy intake (Benjamin Neelon & Briley, 2011).

Self-regulation of energy intake refers to the ability to recognize and eat (or not eat) in response to internal feelings of hunger and fullness (Johnson, 2000). Typically, children are born with the natural ability to self-regulate their energy intake (Fomon, 1974, p. 28; Fox, Devaney, Reidy, Razafindrakoto, & Ziegler,

2006). For example, infants who are given a low caloric formula consume more than infants who are given a high caloric formula to compensate for the caloric deficit in the formula (Fomon, 1974, p. 28). The ability to recognize hunger and fullness can continue throughout early childhood. (L. L. Birch, Johnson, Andresen, Schulte, & Peters, 1991), and caregivers responsive feeding practices can support this ability (Frankel et al., 2014; Johnson, 2000). Specifically, when children are consistently offered larger portions sizes by adults without cues to their internal signals of hunger and fullness, they are likely to consume more calories (Frankel et al., 2014). However, when children are allowed to serve themselves and are given appropriate verbal encouragement, they are more likely to respond to their internal cues (Birch et al., 1987; Ramsay et al., 2010) which can result in less food intake (Fisher, Rolls, & Birch, 2003). Therefore, responsive feeding practices are responsive to children's cues of hunger and fullness and support children's self-regulation in eating.

Conversely, a non-responsive feeding approach or controlling feeding practices have been linked to overriding children's internal cues of hunger and fullness, decreased self-regulation in eating, overeating, and childhood obesity (Sellers, Russo, Baker, & Dennison, 2005). Adults who use controlling feeding practices through force or restriction of children's eating can disrupt self-regulation in eating (L. L. Birch, McPhee, Shoba, Steinberg, & Krehbiel, 1987) and is related to increased food refusal (Fries, Martin, & van der Horst, 2017). Other feeding practices such as rewarding with food and children being required to clean their plates can disrupt self-regulation in eating as well (L. L. Birch & Fisher, 1998; Branen, Fletcher, & Myers, 1997; Orrell-Valente et al., 2007). While well-intentioned caregivers may use these feeding practices to promote a more balanced diet or to make sure a child is eating enough, these controlling practices may lead to fussy or emotional eating. Therefore, controlling feeding practices are non-responsive to children's internal cues of hunger and fullness and hamper children's ability to self-regulate their food intake.

The attention to children's ability to self-regulate food intake as a factor in childhood obesity prevention is founded in the evidence from cross-sectional and observational data identifying an association between satiety responsiveness and body mass index (Carnell & Wardle, 2008; Francis & Susman, 2009; Shunk & Birch, 2004; Tan & Holub, 2015). In other words, a diminished ability to self-regulate energy intake can put a child at higher risk for overweight. Ensuring that caregiver feeding practices support children's self-regulation of energy intake through the use of responsive feeding is an opportunity to address childhood obesity (Johnson, 2000).

Supporting children's self-regulation in eating is paramount to obesity prevention, (Carnell & Wardle, 2008; Francis & Susman, 2009; Shunk & Birch, 2004; Tan & Holub, 2015) and while much attention has been given to supporting self-regulation in eating in the home setting, less research has been conducted in childcare settings (Larson, Ward, Neelon, & Story, 2011). In the US, more than 12 million children attend childcare and consume up to 5 meals and snacks daily in such settings. (Kaphingst & Story, 2009; Larson et al., 2011; Ward, Vaughn, & Story, 2013). Therefore, childcare providers can shape children's dietary behaviors and prevent childhood obesity. Some evidence suggests that childcare providers' mealtime feeding practices are highly associated with children's dietary intake (Gubbels et al., 2010).

Drawing from the evidence linking children's self-regulation in eating and weight, early childhood obesity prevention policies recommend childcare providers practice responsive feeding to support children's self-regulation in eating as a means to prevent obesity. The IOM recommends that state childcare regulatory agencies require childcare providers to practice responsive feeding for toddlers and preschoolers (2-5 y) – by allowing

children to determine how much they eat, and reinforcing children's internal cues of hunger and fullness (Institute of Medicine (IOM), 2011). Similarly, the Position Statement released by the *Academy of Nutrition and Dietetics* (Academy) regarding benchmarks for nutrition in childcare specifically recommends that childcare providers caring for young children (2-5y) should cue children to pay attention to their internal feelings of hunger and fullness and respect these feelings, once expressed (Benjamin Neelon & Briley, 2011).

Even though early childhood obesity prevention policies promote responsive feeding in childcare (Institute of Medicine (IOM), 2011; Benjamin Neelon & Briley, 2011), the implementation of responsive feeding practices may not occur. In particular, nonresponsive verbal strategies identified in the literature include: (1) cueing children to amounts of food without referencing children's internal cues; (2) asking children if they wanted more food without referencing their internal cues; (3) asking children if they were finished eating without referencing their internal cues; (4) telling children to take, try, eat, or finish food; and (5) praising children for eating. Examples of praising statements included: "Let's see you make a happy plate." [clean plate], "We are good eaters, [child's name] and I like the way she eats; she eats all her [food]" (Dev, McBride, Fiese, Jones, & Cho, on behalf of the STRONG Kids Research Team, 2013; Dev, McBride, Speirs, Donovan, & Cho, 2014a; Dev, Speirs, McBride, Donovan, & Chapman-Novakofski, 2014b; Ramsay et al., 2010). The overall theme identified was an overriding non-responsive feeding approach to get children to eat. Similarly, in the primary quantitative study examining providers' verbal communication during meal times, results revealed that providers from all of the childcare contexts examined in the study (Head Start, Child and Adult Care Food Program-funded (CACFP) and non-CACFP funded) tended to use significantly more nonresponsive comments than responsive comments with children. (Dev et al., 2013). The present follow-up (secondary) qualitative study aimed to provide insight on the disconnect between recommendations and childcare providers' use of responsive feeding in childcare, by exploring providers' perspectives regarding such practices. Using the Academy's recommendations for responsive feeding as a framework (Benjamin Neelon & Briley, 2011), the purpose of this study was to identify childcare providers' perceptions regarding their use of responsive feeding practices with young children (2-5 y) in their care. In particular, this study explored childcare providers' perceptions on why they thought responsive feeding was important (or not important) and what factors allowed or prevented them from using the Academy's benchmarks for responsive feeding with young children.

## 2. Method

### 2.1. Research design

To explore providers' perspectives regarding their use of responsive feeding practices, researchers conducted in-depth, face-to-face, individual semi-structured qualitative interviews with childcare providers. Thematic analysis was used to analyze the data. The study was designed and executed by researchers with expertise in nutrition, child development, public health, early care and education, and qualitative research methods. The University of Illinois, Urbana-Champaign Institutional Review Board approved the study for research involving human subjects.

### 2.2. Sampling and recruitment

In 2012, 118 providers from 24 licensed childcare centers in central Illinois completed a survey as part of a primary quantitative

study on their mealtime feeding practices (Dev, McBride, & The STRONG Kids Research Team, 2013). Of these 118 childcare providers, 90 signed a written informed consent to participate in an interview (secondary qualitative study), if contacted. All 90 providers met the eligibility criteria for this study. Specifically, the providers were full-time childcare staff, had direct contact with preschoolers aged 2–5 years, and were responsible for supervising meals or snacks. From a sampling frame of 90 providers, potential participants were selected to participate in an interview (present secondary qualitative study) using maximum variation purposive sampling to select providers from varying childcare contexts (Head Start, Child and Adult Care Food Program (CACFP)-funded, non-CACFP), race, age, education and years of experience. Such a sampling approach was used to include a balanced perspective of providers regarding their use of responsive feeding (Harris et al., 2009). All providers who were contacted to participate in the study through email or phone agreed to participate in the interviews.

### 2.3. Data collection

The lead author, who had no prior relationship with the childcare settings or providers, conducted one-on-one, face-to-face interviews with providers, using a semi-structured interview protocol, adapted from the *About Feeding Children Study* (Price, 2005). The interview protocol examined childcare providers' perspectives regarding their use of responsive feeding practices in childcare as defined by the *Academy of Nutrition and Dietetics Benchmarks for Nutrition in Child-Care* (Benjamin Neelon & Briley, 2011). Given that policies recommend specific practices for responsive feeding, it is important to define responsive feeding for providers in order to understand their perspectives about implementing such practices. The three Academy benchmarks used to define responsive feeding for childcare providers during the interviews were: 1) During mealtimes providers work with children to understand their feelings of hunger and satiety and respect children's hunger and satiety cues, once expressed; 2) Providers follow current portion size recommendations but also respond to children's cues related to hunger and satiety; and 3) Children decide whether they eat and the amount of foods they eat. For detailed interview protocol please refer to Table 1. Throughout the interview, the interviewer did not use the term "responsive feeding" to prevent leading responses but as stated earlier defined responsive feeding based on the Academy's benchmarks (Tong, Sainsbury, & Craig, 2007). The interview protocol consisted of two parts. Part 1 included use of the closed card sorting method in which participants sort a series of cards, each labeled with specific content, into the defined groups (Rugg & McGeorge, 1997). Specifically, for Part 1, providers were presented with a stack of cards with one benchmark written on each card and they were asked to sort the cards into three piles—one pile for the benchmarks that their childcare center uses, one for those the center does not use, and one that they have not heard of or are unsure about. For the pile of cards that the center uses, providers were asked to sort the cards again into three piles: those benchmarks they find are easy to do, they sometimes find hard to do, and find really hard to do. We did not directly analyze the card sort data for this study as this was not the primary focus of the current study. Rather, the results of the card sort (which told us if the providers find benchmarks easy, sometime hard or really hard to do) were used as a context for the second part (Part 2) of the interview. Part 2 of the interview included identifying providers' perceptions or reasons for the selection of cards (benchmarks) in the three piles. Specifically, providers were asked follow-up questions regarding why it was important, easy, sometimes hard or very hard

to implement the Academy's benchmarks. The emerging themes regarding providers' perceptions for implementing the benchmarks were drawn from Part 2 of the interview protocol. Before data collection, an interdisciplinary team of researchers reviewed the interview protocol and the lead author (interviewer) completed ethics training on research with human subjects, and strategies to remain open, unbiased and non-judgmental during the interview (Tong et al., 2007). The lead author pilot tested the interview protocol for face validity with seven childcare providers and received observer feedback to guide revisions for the interview protocol (Tong et al., 2007).

Interviews were conducted between August and November 2012 at the participants' childcare setting, and lasted approximately 45–60 min (average 52 min). To encourage the participants to speak freely and assure confidentiality, all interviews were completed by the lead author in an unoccupied room within the childcare setting behind a closed door. The participants were audio recorded and the voices of the participants were not identified in the audio-recordings. Further, at the beginning of the interview, participants were assured that their answers would not be shared with anyone outside of the study team and the data were not being collected to evaluate their program practices. Fifteen interviews satisfied saturation, but an additional three providers were interviewed to confirm that saturation had been reached and that the additional interviews did not reveal any new information from the overall group of providers (Bowen, 2008). Therefore, the final study sample included 18 providers. All interviews were digitally recorded and transcribed verbatim by a professional transcription agency. Pseudonyms were used for each provider during data analysis and for writing the results. The consent form included the following statement to inform study participants how the information collected may be used, "The results of this study may be used for a dissertation, an educational report, journal articles and presentation. Pseudonyms will be substituted for your name. This helps ensure confidentiality."

### 2.4. Data analysis

The first and second authors analyzed the data by moving through the six steps of thematic analysis outlined by Braun and Clarke (2006): becoming familiar with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. First, to become familiar with the data, the interview transcripts were read twice and initial ideas were noted. Second, to generate initial codes, the data were reviewed and recurrent statements were labeled with initial codes. Third, similar codes were grouped together to create potential themes. Fourth, the themes were reviewed to examine if they were consistent with the codes and representative of the data and conceptually similar themes were merged. Fifth, the themes were named by describing the essence of each theme and giving it a compelling name. These steps were followed to code the entire dataset. Finally, representative quotes for each theme were selected for this paper.

The computer program NVivo (QSR International, Melbourne, Australia, 2010) was used to facilitate data analysis. The first and second authors independently read each transcript twice and identified a set of codes, code definition and themes following the six steps described above. These coders then met to achieve consensus about the themes and merged conceptually similar themes. Coders reached agreement on each code and theme through verbal consensus (Creswell, 2012). Decision for agreement was yes or no; if disagreement occurred, the two coders modified and refined the coding and themes until any disagreements were resolved. Authors who did not

**Table 1.** Childcare provider semi-structured interview protocol.

**Introduction**

Thank you very much for agreeing to participate in this interview. My name is Dipti Dev, I am a graduate student at the University of Illinois at Urbana Champaign.

Today, I am going to interview you about your views regarding feeding guidelines<sup>a</sup> for preschool aged children (2–5 years) attending childcare. This study is not an assessment of whether your program is meeting certain standards, for example the Head Start or CACFP standards. We expect that most programs have not adopted many of these guidelines. This is because these guidelines are not currently an explicit part of any childcare standards. Through this study we wish to take a collaborative approach with child-care providers and bridge disconnect between policy makers and childcare staff. This interview is a chance for you to describe some of the challenges you are facing to implement these guidelines in your program.

Everything you say will be kept confidential. You will not be quoted by name. Our report on the interviews will describe the range of views expressed by staff across programs, but specific comments will not be attributed to specific individuals or programs. I also ask that you not repeat any of our discussion after you leave today.

I would like to record our interview discussion using this digital recorder so I can listen to it later, when I write up my notes. No one outside of our research team will listen to the recordings. After my notes are finalized, I will erase/destroy the recordings. If you want to say anything that you don't want recorded, please let me know and I will be glad to pause the digital recorder. Do you have any objections to my recording our discussion?

The discussion will last about an hour, and we will not take any formal breaks. But please feel free to get up at any time to stretch or use the restroom.

Once again, thank you for coming today. Do you have any questions before we get started?

**Interview Sequence**

**Part 1. Sorting the cards**

Here is a stack of cards that list guidelines for feeding children (2–5 years) in child care.

Could you put these cards into 3 piles:

1. One pile for guidelines that your center uses,
2. One for guidelines that the center doesn't use, and
3. One for guidelines that you haven't heard about or are unsure about\*

Now, could you sort the cards your center uses into another 3 piles:

1. Those that are easy to do,
2. Those that you sometimes find hard to do, and
3. One pile for really hard to do.

**Part 2. Follow-up to explore provider perceptions.**

Let's begin with guidelines that your center uses:

- a. Interviewer moves through each card in the stack of guidelines that are "easy to do."
  - i. What are the main reasons for doing (this)?/What do you think are the most important reasons for following (this guideline)<sup>b</sup>
  - ii. Why is (this) easy to do?
  - iii. What advice would you give to providers who say that they are not able to follow (this guideline)<sup>b</sup>?
- b. Interviewer moves through each card in the stack that are "sometimes hard to do" and then "really hard to do."
  - i. Why is this hard to do?/What prevents you from meeting (this guideline)<sup>b</sup>?
  - ii. What are the main reasons for doing (this)?/What do you think are the most important reasons for following (this guideline)<sup>b</sup>
  - iii. If you could change one thing to make (this guideline) easy to do, what would it be?/What would make it easier to meet (this guideline)<sup>b</sup>?
- c. Let's look at this stack here. (Interviewer points to stack that aren't used.)
  - i. Why do you think the center doesn't use these?/What are the main reasons for the center not doing (this)?/What prevents the center from doing (this)?

**Part 3. Conclusion**

We are about done. Is there anything else you would like to add?

Do you have any questions?

\* Note, no providers identified a benchmark that they had not heard about or were unsure of.

- a. The responsive feeding practices included three cards 1) During mealtimes providers work with children to understand their feelings of hunger and satiety and respect children's hunger and satiety cues, once expressed; 2) Providers follow current portion size recommendations but also respond to children's cues related to hunger and satiety; and 3) Children decide whether they eat and the amount of foods they eat outlined in the Position paper by the Academy of Nutrition and Dietetics benchmarks for Nutrition in Child Care (Benjamin Neelon & Briley, 2011).
- b. Actual guideline listed on the card was read during the interview instead of the words in the parenthesis.

code the transcripts verified that the themes were supported by the codes and quotations. Throughout the data collection and analysis process, the lead author ensured accountability, accuracy, and monitored researchers' biases through ongoing peer debriefing consultations and frequent research team meetings (Tong et al., 2007).

**3. Results**

The sample for this study included 18 childcare providers who were employed full-time at their childcare program and directly responsible for supervising meals and snacks for preschool children (2-5y). The providers had an average age of 41.5 years (SD 13.2) and average experience of 11.7 years (SD 9.1) as childcare providers. Just over half of the providers had some college or technical school or less education. See Table 2 for complete sample demographic information.

Three factors shaped providers' perspectives on using responsive feeding practices: the providers' perspectives about whether or not young children can self-regulate food intake, their understanding of CACFP portion size regulations, and the food availability at the childcare center where they worked.

**Table 2.** Demographics of a cohort of 18 childcare providers participating in semi-structured interview data collection on their use of responsive feeding practices with children ages 2–5 years.

Characteristics	n
Head Start	6
Child and Adult Care Food Program (CACFP)	6
Non-CACFP	6
Race	
Non-Hispanic Black	9
Non-Hispanic White	9
Education	
Some college or technical school (1–3 years)	10
College graduate (4 years or more)	8
Provider Age <i>Mean (SD)</i>	41.52 (13.2)
Years of Experience as childcare teacher <i>Mean (SD)</i>	11.7 (9.1)

**3.1. Belief about children's ability to self-regulate energy intake**

The first factor that seemed to shape providers' use of responsive feeding practices was whether or not they believed children could self-regulate their energy intake. Some providers

believed most children could self-regulate their energy intake while other providers believed children often ate for reasons other than hunger or satiety and that their food intake should be carefully monitored and controlled by caregivers. These different beliefs seemed to lead to different perspectives on responsive feeding practices.

Many providers in our sample seemed to express the belief that the children they cared for could self-regulate their energy intake. These providers reported that they could trust children to eat in response to hunger and stop eating when they were full, and they could articulate to their caregivers when they were hungry or full. Esmeralda demonstrated this perspective in explaining why it was important to allow children to have a second helping when they asked for one:

So they won't be hungry. At least you know they've had what they asked for. If you don't give them another helping and they are hungry, then see, they're still hungry. Some children take more than others, so yeah...if they want another one, then they haven't had enough.

This provider describes how she allows children to determine how much they ate and viewing their requests for seconds as an indication that they had not had enough to eat. Marisa stated the importance of allowing children to respond to their internal cues and not overriding them.

If I praise them for finishing a plate full of food, they're trying to please me in the amount of food that they're eating. They're not responding to the hunger or fullness signals that they have ... I can make a kid eat too much, easily, just because I demand it. That's not the right thing to do. And just because I think they should finish their whatever, doesn't mean that they should really finish the whatever, if they're already full. There's no reason for that.

These providers believed that the children they cared for knew when they were hungry or full and would eat in response to their internal cues of hunger and satiety. Holding this belief seemed to translate into being comfortable allowing the children to decide how much to eat. Jasmine explained:

So every kid has a different appetite so you can't force them to eat what their stomach's not gonna take. It's not good for them. And that's the one thing that leads to obesity if you're trying to force a kid to eat what you think they should have.

These providers endorsed responsive feeding practices and were able to articulate the consequences of controlling feeding practices.

A few of the providers in our sample expressed a belief that children can self-regulate energy intake, but may have trouble communicating to others when they are full or hungry. These providers reported trying to find strategies to determine when the children were hungry or full. Ashley explained:

A lot of times during mealtimes, it's almost naptime. And they're fussy and tired, and so sometimes ... all communication goes out the window and they're crying or they're...irritated. And so we're trying to get them to use their words and talk calmly to us, and we can't understand. Or sometimes they're shy. They don't want to ask for more. And so we have to really pick up on their cues. If they keep looking at the food and looking at you, and then they don't say anything, maybe they're shy and they don't want to

ask, but they are hungry. You've got to pick up on that. Sometimes if they're just fussy and you've got to ask, okay, what are you really feeling? Are you hungry? Do you want more?

These providers made it clear that they thought that decisions about how much to feed a child should be based on how hungry or full the child was, but it could be hard to determine a child's level of hunger. To determine how hungry a child was, they reported asking questions and attempting to understand each child's verbal and non-verbal cues.

A second group of providers suggested that children struggle to self-regulate food intake and often ate for reasons other than hunger. Dana explained:

Sometimes it's hard for kids to know when they're full, when they're done. We had chicken nuggets, and the kids had six, so they wanted more. We gave them another one, and we're like, "Don't you think you should be done because that's a lot of chicken nuggets?" So, I think they just eat too fast to know that they're actually full. So, sometimes, I think that's hard for kids to determine - if they're really hungry or if they just see it there and they wanna eat it.

Among these providers who believed the children they cared for struggled to self-regulate their food intake, some suggested that it was appropriate to use controlling feeding practices while others reported attempting to teach the children to recognize and respond to their internal cues of hunger and fullness. Hannah, a provider who expressed the belief that children struggled to self-regulate food intake and responded by using controlling feeding practices, explained why it was sometimes appropriate to pressure children to eat. She stated, "Some don't eat much. They pick ... at their food like little birds. But you have to make them eat sometimes. 'Just take one more bite. Just take two more bites. Do it for mommy.'" For these providers, the belief that young children were not able to self-regulate their food intake seemed to lead them to endorse controlling feeding practices to ensure children were not eating too much or too little.

Other providers who believed children struggled to self-regulate their food intake suggested that children should be taught to recognize their hunger and fullness cues. Maureen explained that she tried to have:

the children understand that you don't have to just keep eating and keep eating, that you have to read your body's signs, and to let them know that they don't need to clean their plates. They don't need to just continually eat when they're not hungry, that they have to read their body's cues...And that when you start to feel full, you don't have to eat anymore ... So I think it's very important to help them understand that they need to tune into their own bodies already at 3 and 4 and 5. I think they should be encouraged to try things, but if you're full after a few bites of something, or if you want to just try one bite of something, that works.

Another provider reported asking children to wait a few minutes after eating a first serving before deciding if they should eat a second helping because "they almost inhale their food - they eat so fast - finish(ing) everything on their plate in five or six minutes." After the children had waited a few minutes "then we might pass around the seconds and say, 'Who is still hungry?'" This provider was attempting to help the children understand their internal cues of hunger and fullness by giving them a break between first and second helpings which may allow children to assess whether or not they were still hungry.

A few providers explained that they taught children the vocabulary necessary to express hunger and fullness. Trisha explained:

We talk about feelings a lot here. You know, sad, happy, and hungry is one of them. They kind of want the kids to understand their bodies. And if you use the vocabulary as in “hungry” or “Are you full?”, then they’ll understand it. They’ll pick up on it. And so we kind of talk about that. You know, “It’s almost lunchtime. Our bellies are hungry. Or are you full? Then that means you ate enough food.”

Although these providers reported that children often struggled to self-regulate their food intake, they also suggested that children could learn to do this and endorsed using mealtimes as an opportunity to help the children in their care recognize and respond to their internal feelings of hunger and fullness.

Additionally, Taylor explained that she would closely monitor the children’s food intake and behavior so she could allow the children to make some of their own decisions about what, when, and how much to eat; but also intervene if she felt the children were not getting enough to eat. Monitoring the children’s food intake allowed her to feel comfortable letting the children decide how much to eat. If she had a child she was concerned might eat too much or too little, she would “really observe the child and know what this child needs and is wanting. And try to tell them and try to talk to them about their hunger.”

Finally, Fiona believed that children struggled to self-regulate food intake but reported that she allowed them to eat as much or as little as they wanted because she felt she had to, to be in compliance with her center’s regulations. When asked why she “follow(ed) current portion size recommendations, but also respond(ed) to children’s cues related to hunger and satiety she responded:

Because we have to ... It’s a standard. The child is supposed to get this amount of portion and this amount of portion. But you can’t – we’re not supposed to make them eat it, but as long as we put it on their plate and offer it to them. Some of them will eat it all, some of them won’t. Some ask for seconds, some of them don’t. So you know, we don’t push it on them ... (But) I don’t think that we should let them do that (decide whether they eat and the amount of the food they eat) because we have some kids that will eat all the fruit, fruit, fruit, fruit, fruit, and that’s all they eat, and they won’t eat anything else. But we can’t say, “No, you can’t have any more fruit because you had enough,” or whatever. So I think that’s kind of hard. Because you have those kids that just like certain things, and they’ll eat it up from everybody, and nobody else gets any of it. And they won’t eat anything else.

This provider reported using responsive feeding practices but only because the Head Start standards required her to and she seems concerned about children only eating one particular food.

Overall, the providers in this study seemed to hold one of two beliefs about whether or not young children can self-regulate food intake. Those who felt children could do this also mentioned using responsive feeding practices in which they encouraged children to understand, recognize and respond to their internal cues of hunger and fullness. Those providers who felt some children struggled to self-regulate food intake either mentioned using controlling feeding practices as a means of ensuring that children ate an appropriate amount of food or attempted to teach children how to be responsive to their internal cues of hunger and fullness.

### 3.2. Understanding of CACFP regulations

Based on the providers’ responses, understanding CACFP portion size regulations was identified as a challenge to practicing responsive feeding. The US Department of Agriculture’s Child and Adult Care Food Program (CACFP), provides reimbursement for meals and snacks to 3.2 million low-income preschool children in childcare daily. Participating sites have to comply with meal pattern requirements in order to be reimbursed for the meals they serve. CACFP requires a specific amount of food be made available to child at each meal in order for that food to be reimbursed. For example, each three to five-year-old child should be offered at least ½ a cup of fruits or vegetables at breakfast. The CACFP requires providers to make this quantity of food *available* to the children, but does not require that children *consume* these quantities. (USDA CACFP, 2016). In Illinois, where the data for this paper were collected, licensed childcare centers must follow the CACFP portion size regulations even if they are not funded by CACFP in order to maintain their license.

For some of the providers in the sample, the CACFP portion size regulations seemed to complicate their attempts to use responsive feeding practices. These providers mistook the portion size regulations as guidelines for what the children should *eat* rather than what the children should be *offered*. This confusion led the providers to endorse pressuring children to eat a complete serving of all foods served at each meal to ensure the child was eating enough food to be healthy. Abby explained:

Following a portion size helps so that they’re not overeating or under eating the recommendations for all the food groups and what they need. And then we follow the rule where they have to have all their first – their plate clean before they can have seconds of something they really like. So that way, they’re not eating just a bread or a fruit. They’re eating all of the portions and all of the food groups.

While the CACFP portion size regulations lead to confusion for some providers, others correctly understood that the regulations should be used to determine how much food to make available, and then children should be allowed to decide how much and which of the available foods they ate. Maureen explained:

We give them the proper portions to start with (the portions required by CACFP). And if they’re hungry, you can go ahead and eat the things that you want. If you’re not hungry, you can either try it or see if you like it, or you can not try it. Either way is fine.

### 3.3. Limited food availability

Finally, for some of the providers in the sample their ability to use responsive feeding practices, was shaped by limited food availability, particularly in allowing children to determine how much they eat. For some providers, it was challenging to allow children to have more than one serving at mealtimes due to limited food availability because of financial constraints. Elaine explained, “I think because of food costs and money-wise, we’re being very conscious of how much [food] each classroom is given, based on how many children that they have in there.”

Ashley explained:

It does get challenging once everybody wants seconds, and we’re trying to dice up the chicken in thirds or something like that to accommodate all the children....And then maybe there’s not enough for everybody to have seconds or thirds or whatever.

This concern with the center's resources lead some providers to the conclusion that they could not practice responsive feeding practices because there was not enough food to allow the children to determine how much they ate. Other providers were not constrained by a concern about limited food availability and conveyed using more responsive feeding practices. Dana explained:

There is extra on the table. And, sometimes, we have kids that have seconds, and thirds, and fourths because they're hungry. But then, we have other kids that just eat a little bit and they say they're full. So, whatever they eat, that's what we let them eat.

#### 4. Discussion

This qualitative study examined childcare providers' perspectives on using responsive feeding practices with preschool-aged children, an important behavioral strategy for helping young children eat according to their internal hunger and satiety cues and supporting their self-regulation in eating (Black & Aboud, 2011). The findings from this study suggest an important factor affecting providers' use of responsive feeding practices is their belief regarding whether or not children can self-regulate their food intake. Many providers believed young children often eat for reasons other than hunger or satiety. Providers who believed children can self-regulate their food intake responded to children in ways that promoted self-regulation in eating (e.g., teaching children to recognize feelings of hunger and fullness, helping children learn ways to communicate their needs with caregivers). However, other providers who believed children could not self-regulate their intake of food reported using non-responsive or controlling feeding practices (e.g., pressuring children to eat) with children they perceived as over- or undereating.

These results indicate an important first step in promoting the use of responsive feeding practices in childcare settings is to help providers understand that young children are able to self-regulate their energy intake, and that they can support children to maintain this ability while still actively promoting healthy eating habits during mealtimes. For example, consistent with the family style dining approach, providers should be encouraged to allow children to serve themselves and select their own portion sizes (Brannen et al., 1997), while cueing children to their feelings of hunger and fullness (Ramsay et al., 2010), as these strategies may make children less likely to overeat (Fisher et al., 2003). As preschoolers may take larger portion sizes when self-serving compared with plated portions (Savage, Haisfield, Fisher, Marini, & Birch, 2012), future research is needed to examine provider practices such as use of smaller plates for meals and to sit with children during mealtimes so that providers can offer guidance that is aligned to the developmental needs of each child. For example, additional research on provider strategies such as physical assistance in pouring or scooping (e.g., caregivers' hand over the child's hand while using serving spoon), or verbal reminders to prevent over-serving (e.g., "You can start with one scoop now, and take more later if you are still hungry.") would be beneficial.

Childcare providers tend to use non-responsive or controlling feeding practices as a straightforward approach to get children to eat more food including fruits and vegetables (Mita, Li, & Goodell, 2013). Future research is needed to determine if gaining knowledge related to children's ability to self-regulate their energy intake and the strategies to support this ability, may alleviate providers' concerns regarding children's intake, increase their use of responsive feeding strategies, and reduce controlling feeding practices. These outcomes are likely to benefit children both in the short-term by promoting self-regulation

in eating and improved acceptance of novel foods/healthy food choices (Johnson, 2000), and in the longterm by reducing children's risk of developing obesity (Carnell & Wardle, 2008; Francis & Susman, 2009; Shunk & Birch, 2004; Tan & Holub, 2015).

Our findings suggest a misconception among some providers that CACFP regulations specify the quantity of food(s) that a child should *consume* during mealtime to maintain good health, rather than the quantity of food(s) that are required to be *offered* to a child. This is a critical misunderstanding and seems to present a barrier to the use of responsive feeding practices in childcare settings. The providers in our study who interpreted portion size regulations as requirements for how much children should eat described using pressure to ensure children ate a certain amount at each meal. In contrast, providers who accurately interpreted the portion size regulation, allowed children to determine how much and which of the available foods to eat. Further study is needed on strategies for providers to interpret CACFP regulation as well as determining the necessary revision of CACFP regulations to clarify that the required portions are to be offered and made available to children, but not necessarily consumed by children.

Additionally, findings from the current study underscore the need for research aimed at identifying effective training strategies that better prepare providers to implement evidence-based best practices for responsive feeding and portion size management. Existing obesity prevention educational curricula (e.g., the Preschool Obesity Prevention Series) (Miller et al., 2012) seek to enhance children's behavioral regulation skills, but educational materials focused on enhancing children's regulatory skills specific to the childcare context are lacking. CACFP participation has been associated with improved nutritional quality of foods and beverages served in childcare centers (Ritchie et al., 2012) and among low-income children, has been shown to moderately increase consumption of milk and vegetables (Korenman, Abner, Kaestner, & Gordon, 2012). The CACFP recommendations could be further leveraged to help prevent childhood obesity by placing a greater emphasis on the development of training materials for improving childcare providers' use of responsive feeding practices that support children's self-regulation of their energy intake.

The present study results also suggest that issues related to food availability merit consideration in relation to providers' implementation of responsive feeding practices; however, this area of study needs further examination. For some children, a single serving is sufficient to reach satiation, whereas other children may need a second or even third serving to reach satiation. Some providers in this study expressed difficulty in accommodating requests for additional servings of foods the children desired due to limited food availability and food costs. As such, even if providers trust children to self-regulate their intake and want to implement responsive feeding practices, they may perceive themselves to be constrained due to a discrepancy between the amount of food they have available during mealtimes and the amount children wish to eat. Future studies are needed to determine the reasons (e.g. federal subsidy, budget, ordering issues) for limited food availability in the childcare setting.

Lack of funding for food has been consistently reported as a barrier by childcare providers (Hughes, Gooze, Finkelstein, & Whitaker, 2010; Whitaker, Gooze, Hughes, & Finkelstein, 2009). Increasing the federal resources (e.g. CACFP reimbursement amounts and child care subsidy payments) available for centers to ensure that nutritious meals and snacks are available in sufficient quantities to allow children to consume as much as they need to feel full may address this barrier, but needs further study. Training around financial management, food preparation, and food shopping could also be used to help providers make the most of their limited resources. Research is needed to

identify the training needs of providers that will enable them to help children eat in response to their internal cues while also being honest about food availability and not ‘restrict’ foods if there are budget constraints is needed. For example, studying how providers’ verbal guidance such as letting children know that there are no more raspberries (a very expensive food) but there is more milk available if the child is still hungry after finishing the raspberries, and saying, “we have only two chicken nuggets for each child, but we have lots of pears and peaches. So, if you are still hungry, you can have those,” may be beneficial. Giving providers specific examples of verbal comments that support children’s eating in response to their internal hunger and fullness cues may offer several benefits with respect to fostering children’s ability to self-regulate their food intake and needs to be evaluated by future studies. Future research also is needed on how providers or center directors can be encouraged to keep inexpensive, healthy, and non-perishable foods (e.g. whole grain crackers and applesauce) on hand in case children are hungry at the end of a meal.

Present study findings provide insights to increase childcare providers’ use of responsive feeding practices with children in their care during mealtime. Although responsive feeding practices have been associated with more positive child eating outcomes, much of this research has been conducted with parents and in the home environment. It is possible that feeding practices differ across contexts (family childcare home vs. center-based care) and that certain feeding practices that are associated with healthy eating habits in one context may not translate to the child-care environment. Future studies are needed to determine the impact of responsive feeding practices on child outcomes across childcare contexts as well as child characteristics that may lead to the use of more responsive feeding practices. For example, children’s acceptance of food is related to childcare providers using more responsive feeding practices (Tovar et al., 2016). It is also recommended that future studies focus on determining if training child care providers in nutrition and childhood obesity prevention strategies influences their implementation of responsive feeding practices.

#### 4.1. Limitations

Several limitations should be acknowledged. This study focused exclusively on the perspectives of center-based childcare providers. The perspectives of center directors and kitchen staff who may also be involved in mealtime practices were not examined; moreover, the perspectives of providers in other settings (e.g., home-based child care) were not examined. A broader perspective of viewpoints should be addressed in future studies.

Using interviews did not allow us to determine the feeding practices that the providers in our sample actually used. Rather, we were able to capture their perspectives on responsive feeding practices. As this was our purpose, these methods are well-suited to address our research question. However, it should be noted that based on interview data we cannot determine with certainty how the providers in our sample feed young children and objective assessments such as observations for measuring compliance. Our findings should be read and interpreted with this in mind.

Finally, our sample is not representative of all center-based childcare providers, however, we did use maximum variation sampling to ensure that the sample included providers with diverse backgrounds/experiences and working in different childcare contexts. Finally, steps were taken during the interview to minimize social desirability bias (e.g. conducting the interviews in a private room) and the authors assumed that the providers’ responses were accurate.

## 5. Conclusions

It is important that childcare providers use responsive feeding practices in order to help young children maintain the ability to self-regulate energy intake. Our findings suggest that some providers may be reluctant to use responsive feeding practices because they do not believe young children can be trusted to decide how much they eat, they mistakenly think that CACFP regulations require children eat a certain amount of food at each meal, and/or may not have the resources to offer second helpings. Future research is needed to examine how childcare providers’ understanding of children’s ability to self-regulate their food intake, CACFP requirements in relationship to serving sizes and having food available to offer seconds to children improves their use of responsive feeding practices. Such efforts will be an important step in improving children’s eating behaviors and dietary intake in center-based childcare programs.

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## References

- Barlow, S. E. (2007). Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics*, *120*(Supplement), S164.
- Benjamin Neelon, S. E., & Briley, M. E. (2011). Position of the American Dietetic Association: Benchmarks for nutrition in childcare. *Journal of the American Dietetic Association*, *111*(4), 607–615. doi: 10.1016/j.jada.2011.02.016
- Birch, L. L., & Fisher, J. O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics*, *101*(3), 539.
- Birch, L. L., Johnson, S. L., Andresen, G., Peters, J. C., & Schulte, M. C. (1991). The variability of young children’s energy intake. *New England Journal of Medicine*, *324*(4), 232–235.
- Birch, L. L., McPhee, L., Shoba, B., Steinberg, L., & Krehbiel, R. (1987). “Clean up your plate”: Effects of child feeding practices on the conditioning of meal size. *Learning and Motivation*, *18*(3), 301–317.
- Black, M. M., & Aboud, F. E. (2011). Responsive feeding is embedded in a theoretical framework of responsive parenting. *The Journal of Nutrition*, *141*(3), 490–494.
- Bowen, G. A. (2008). Naturalistic inquiry and the saturation concept: A research note. *Qualitative Research*, *8*(1), 137.
- Branen, L., Fletcher, J., & Myers, L. (1997). Effects of pre-portioned and family-style food service on preschool children’s food intake and waste at snacktime. *Journal of Research in Childhood Education*, *12*(1), 88–95. doi: 10.1080/02568549709594719
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.
- Carnell, S., & Wardle, J. (2008). Appetite and adiposity in children: Evidence for a behavioral susceptibility theory of obesity. *American Journal of Clinical Nutrition*, *88*(1), 22.
- Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches*. Sage.
- Dev, D. A., McBride, B. A., & The STRONG Kids Research Team. (2013). Academy of Nutrition and Dietetics benchmarks for nutrition in childcare 2011: Are childcare providers across contexts meeting recommendations? *Journal of the Academy of Nutrition and Dietetics*, *113*(10), 1346–1353.

- Dev, D. A., McBride, B. A., Speirs, K. E., Donovan, S. M., & Cho, H. K. (2014). Predictors of Head Start and Child-Care providers' healthful and controlling feeding practices with children aged 2 to 5 years. *Journal of the Academy of Nutrition and Dietetics*, 114(9), 1396-1403.
- Dev, D. A., Speirs, K. E., McBride, B. A., Donovan, S. M., & Chapman-Novakofski, K. (2014). Head Start and childcare providers' motivators, barriers and facilitators to practicing family-style meal service. *Early Childhood Research Quarterly*, 29(4), 649-659.
- Fisher, J. O., Rolls, B. J., & Birch, L. L. (2003). Children's bite size and intake of an entrée are greater with large portions than with age-appropriate or self-selected portions. *The American Journal of Clinical Nutrition*, 77(5), 1164-1170.
- Fomon, S. J. (1974). *Voluntary food intake and its regulation. Infant nutrition* (2nd ed.). Philadelphia: W.B. Saunders Company.
- Fox, M. K., Devaney, B., Reidy, K., Razafindrakoto, C., & Ziegler, P. (2006). Relationship between portion size and energy intake among infants and toddlers: Evidence of self-regulation. *Journal of the American Dietetic Association*, 106(1), 77-83.
- Francis, L. A., & Susman, E. J. (2009). Self-regulation and rapid weight gain in children from age 3 to 12 years. *Archives of Pediatrics and Adolescent Medicine*, 163(4), 297.
- Frankel, L. A., O'Connor, T. M., Chen, T., Nicklas, T., Power, T. G., & Hughes, S. O. (2014). Parents' perspectives of preschool children's ability to regulate eating. Feeding style differences. *Appetite*, 76(1), 166-174.
- French, S. A., Epstein, L. H., Jeffery, R. W., Blundell, J. E., & Wardle, J. (2012). Eating behavior dimensions. associations with energy intake and body weight. A review. *Appetite*, 59(2), 541-549.
- Fries, L. R., Martin, N., & van der Horst, K. (2017). Parent-child mealtime interactions associated with toddlers' refusals of novel and familiar foods. *Physiology & Behavior*, 176(1), 93-100.
- Gubbels, J., Kremers, S., Stafleu, A., Dagnelie, P., De Vries, N., & Thijs, C. (2010). Childcare environment and dietary intake of 2-and 3-year-old children. *Journal of Human Nutrition and Dietetics*, 23(1), 97-101.
- Harris, J. E., Gleason, P. M., Sheean, P. M., Boushey, C., Beto, J. A., & Bruemmer, B. (2009). An introduction to qualitative research for food and nutrition professionals. *Journal of the American Dietetic Association*, 109(1), 80-90.
- Hughes, C. C., Gooze, R. A., Finkelstein, D. M., & Whitaker, R. C. (2010). Barriers to obesity prevention in head start. *Health Affairs*, 29(3), 454-462.
- Institute of Medicine (IOM). (2011). *Early childhood obesity prevention policies*. Washington, DC: The National Academies Press.
- Johnson, S. L. (2000). Improving preschoolers' self-regulation of energy intake. *Pediatrics*, 106(6), 1429.
- Kaphingst, K. M., & Story, M. (2009). Childcare as an untapped setting for obesity prevention: State childcare licensing regulations related to nutrition, physical activity, and media use for preschool-aged children in the United States. *Preventing Chronic Disease*, 6(1).
- Korenman, S., Abner, K. S., Kaestner, R., & Gordon, R. A. (2012). The child and adult care food program and the nutrition of preschoolers. *Early Childhood Research Quarterly*, 28(2), 325-336.
- Larson, N., Ward, D. S., Neelon, S. B., & Story, M. (2011). What role can child-care settings play in obesity prevention? A review of the evidence and call for research efforts. *Journal of the American Dietetic Association*, 111(9), 1343-1362.
- Miller, A. L., Horodyski, M. A., Herb, H. E., Peterson, K. E., Contreiras, D., Kaciroti, N., ... Lumeng, J. C. (2012). Enhancing self-regulation as a strategy for obesity prevention in Head Start preschoolers: The growing healthy study. *BMC Public Health*, 12. doi: 10.1186/1471-2458-12-1040
- Mita, S. C., Li, E., & Goodell, L. S. (2013). A qualitative investigation of teachers' information, motivation, and behavioral skills for increasing fruit and vegetable consumption in preschoolers. *Journal of Nutrition Education and Behavior*, 45(6), 793-799.
- Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011-2012. *Jama*, 311(8), 806-814.
- Orrell-Valente, J. K., Hill, L. G., Brechwald, W. A., Dodge, K. A., Pettit, G. S., & Bates, J. E. (2007). "Just three more bites": An observational analysis of parents' socialization of children's eating at mealtime. *Appetite*, 48(1), 37-45.
- Price, E. A. (2005). *Factors influencing feeding styles used by staff during meals with young children in group settings*. University of Idaho.
- QSR International Pty Ltd. Melbourne, Australia. (2010). *NVivo Qualitative Data Analysis Software (Version 9)*.
- Ramsay, S. A., Branen, L. J., Fletcher, J., Price, E., Johnson, S. L., & Sigman-Grant, M. (2010). "Are you done?" childcare providers' verbal communication at mealtimes that reinforce or hinder children's internal cues of hunger and satiation. *Journal of Nutrition Education and Behavior*, 42(4), 265-270.
- Ritchie, L. D., Boyle, M., Chandran, K., Spector, P., Whaley, S. E., James, P., ... Crawford, P. (2012). Participation in the child and adult care food program is associated with more nutritious foods and beverages in childcare. *Childhood Obesity (Formerly Obesity and Weight Management)*, 8(3), 224-229.
- Rugg, G., & McGeorge, P. (1997). The sorting techniques: A tutorial paper on card sorts, picture sorts and item sorts. *Expert Systems*, 14(2), 80-93.
- Savage, J. S., Haisfield, L., Fisher, J. O., Marini, M., & Birch, L. L. (2012). Do children eat less at meals when allowed to serve themselves? *The American Journal of Clinical Nutrition*, 96(1), 36-43.
- Sellers, K., Russo, T. J., Baker, I., & Dennison, B. A. (2005). The role of childcare providers in the prevention of childhood overweight. *Journal of Early Childhood Research*, 3(3), 227.
- Shunk, J. A., & Birch, L. L. (2004). Girls at risk for overweight at age 5 are at risk for dietary restraint, disinhibited overeating, weight concerns, and greater weight gain from 5 to 9 years. *Journal of the American Dietetic Association*, 104(7), 1120-1126.
- Tan, C. C., & Holub, S. C. (2015). Emotion regulation feeding practices link parents' emotional eating to children's emotional eating: A moderated mediation study. *Journal of Pediatric Psychology*, 40(7), 657-663.
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care : Journal of the International Society for Quality in Health Care*, 19(6), 349-357.
- Tovar, A., Vaughn, A. E., Fallon, M., Hennessy, E., Burney, R., Ostbye, T., et al. (2016). Providers' response to child eating behaviors: A direct observation study. *Appetite*, 105(1), 534-541.
- United States Department of Agriculture Child and Adult Care Food Program (2016), <http://www.fns.usda.gov/cacfp/meals-and-snacks> (Accessed January 2017).
- Ward, D. S., Vaughn, A., & Story, M. (2013). Expert and stakeholder consensus on priorities for obesity prevention research in early care and education settings. *Childhood Obesity*, 9(2), 116-124.
- Whitaker, R. C., Gooze, R. A., Hughes, C. C., & Finkelstein, D. M. (2009). A national survey of obesity prevention practices in head start. *Archives of Pediatrics & Adolescent Medicine*, 163(12), 1144-1150.