



The Child and Adult Care Food Program and the nutrition of preschoolers

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ARTICLE INFO

Article history:

Received 31 August 2011

Received in revised form 13 July 2012

Accepted 22 July 2012

Keywords:

Child nutrition

Early childhood programs

Public assistance

Program evaluation

ABSTRACT

Children spend a considerable amount of time in preschools and child care centers. As a result, these settings may have an influence on their diet, weight, and food security, and are potentially important contexts for interventions to address nutritional health. The Child and Adult Care Food Program (CACFP) is one such intervention. No national study has compared nutrition-related outcomes of children in CACFP-participating centers to those of similar children in non-participating centers. We use a sample of four-year-old children drawn from the Early Childhood Longitudinal Study, Birth Cohort to obtain estimates of associations between CACFP program participation and consumption of milk, fruits, vegetables, fast food, and sweets, and indicators of overweight, underweight status and food insecurity. We find that, among low-income children, CACFP participation moderately increases consumption of milk and vegetables, and may also reduce the prevalence of overweight and underweight. Effects on other outcomes are generally small and not statistically significant.

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The incidence of overweight among preschoolers (children aged two to five) increased from 7.2% to 13.9% between the late 1970s and the early 2000s and has been particularly elevated for low-income children (Wang & Beydoun, 2007). For example, in the early 2000s, 17.4% of low-SES children aged two to nine were overweight, as compared to 9.7% of same-aged high-SES children (Wang & Beydoun, 2007). The amount of time young children spend in non-parental care has also increased; for example, the fraction of three- to four-year-old enrolled in preschools doubled between 1970 and 1993, and increased another nine percentage points between 1994 and 2002, reaching more than 56% in 2002, before falling to about 52% in the recent economic recession (Aud et al., 2011). Increasing overweight and time in child care have led policymakers and others to focus on preschools, child care centers, and homes as important access points for nutritional programs for young children, especially poor children; some have argued that efforts to improve nutrition and influence dietary habits in child care settings may be particularly effective (American Dietetic Association, 2005; Briley & McAllaster, 2011; Story, Kaphingst, & French, 2006).

The federal Child and Adult Care Food Program (CACFP) or its predecessors has been serving children in child care since the late 1960s. As of 2008, the CACFP spends about \$2.4 billion annually to reimburse child care providers for meals and snacks served to children in their care. The size of the program in terms of

expenditures is similar to the USDA's School Breakfast Program. The CACFP reimburses participating centers according to a child's family income, similar to the USDA's School Lunch Program. In addition, Head Start program rules require participation in CACFP. Nonetheless, CACFP fails to reach many children, including many poor children, because of program rules that prevent some child care providers from participating and because of provider non-participation, even though almost all providers are eligible for some level of subsidy (Gordon, Kaestner, Korenman, & Abner, 2011).

Despite the size and potential importance of the program, few studies have examined the effects of CACFP on children, and to our knowledge, only one study of two centers (Bruening, Gilbride, Passannante, & McClowry, 1999, reviewed below) has compared children in CACFP-participating settings to similar children in non-participating settings. This gap in research and in knowledge about a program of this size has been noted in prior reviews of social welfare programs. Glantz (2004, p. 326) summarized his review of CACFP research as follows: "Some studies have assessed the nutrient contribution of CACFP meals and snacks to participants' overall diets. However, there has been no research on the impact of the program on participants' nutrition and health status, relative to nonparticipants." And, in a comprehensive review of federal nutrition programs, Currie (2006, p. 86) concluded:

One of the most important [of the smaller food programs] is the Child and Adult Care Food Program, which operates somewhat like the school meals programs, but serves approximately 1.7 million low-income children in daycare centers. There has been little investigation of the benefits of participation in these programs.

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We use the Early Childhood Longitudinal Survey–Birth Cohort (ECLS-B; Snow et al., 2007) to obtain estimates of associations between CACFP participation and children's food consumption, weight (e.g., obesity), and family food security. The ECLS-B is a household survey that includes direct child assessments, as well as on-site visits and observations of child care providers and interviews with center directors and home care providers. The linked household-provider design is critical to this study because participation in CACFP is determined by providers, and families may not be aware that their provider receives reimbursements from the CACFP. Ours is the first large-scale study to examine the potential benefits of participation in CACFP, especially for low-income children, the target beneficiaries of CACFP.

1. Program description

The CACFP reimburses caregivers for meals and snacks served to children in child care centers, preschools, day care homes, after-school programs, and homeless shelters. As noted above, CACFP serves approximately two million children and had expenditures of \$2.4 billion in 2008.

2. CACFP eligibility and reimbursement rates

Four criteria determine eligibility and reimbursement levels: type of care (center vs. home, for-profit vs. non-profit, licensed vs. unlicensed), neighborhood income, provider income, and/or family income of children. Fig. 1 (from Gordon et al., 2011) describes these criteria for the period corresponding to our study, 2001–2005. As we discuss below, we focus our analysis on 4-year-old children in centers or preschools. Our program description, therefore, pertains to these ages and settings.

CACFP reimburses centers on a per-meal, per-child basis. All centers are eligible to receive some level of reimbursement from CACFP except for-profit providers that serve few low-income children. The child's family income determines the reimbursement level: *full* (for incomes below 130% of the federal poverty line), *reduced* (for incomes between 130% and 185% of poverty), or *paid* (for incomes above 185% of poverty). In 2004–05, full reimbursement rates were \$1.23 for breakfast, \$2.24 for lunch, and \$0.61 for snacks; reduced rates were \$0.93, \$1.84 and \$0.30, respectively; and paid rates equaled \$0.23, \$0.21, and \$0.05, respectively (U.S. Department of Agriculture, n.d.). Program rules make children who participate in Temporary Assistance for Needy Families (TANF), Food Stamps (now the Supplemental Nutrition Assistance Program, or SNAP), or Head Start categorically eligible for full reimbursement. For-profit centers are ineligible if fewer than 25% of enrolled children are either categorically eligible, income-eligible (less than 185% of poverty) or receive subsidies for care through Title XX (Social Services Block Grant funds; U.S. Department of Agriculture, 2008). Federal regulations require that centers “be licensed, or otherwise have approval, by the appropriate Federal, State, or local licensing authority” (Richard B. Russell National School Lunch Act, 2010, p. 73). States typically do not require centers and preschool programs overseen by organizations such as schools, churches, or local governments to obtain licenses (National Child Care Information Center & National Association for Regulatory Administration, 2009).

3. Potential mechanisms linking CACFP to children's nutritional outcomes

There is considerable scope for CACFP to influence nutritional outcomes because children in full-time care typically consume half to two-thirds of their daily meals and snacks at child care

on days when they are in care (Ziegler, Briefel, Ponza, Novak, & Hendricks, 2006). The CACFP may influence children's nutritional health directly or indirectly, through several pathways. Consider, for example, the possible causal pathways from CACFP participation to children's overweight status. CACFP could directly reduce the chance that a child is overweight by improving dietary quality in the child care setting. CACFP seeks to improve dietary quality through three primary mechanisms: resources (reimbursements for meals), information (such as nutritional guidelines), and monitoring (of menus). Monitoring and resources (reimbursements) should increase providers' adherence to the dietary guidelines. In principle, the CACFP could operate through indirect mechanisms; for example, promoting healthy eating in the child care setting could carry over into the home, as children may develop healthier eating habits.

CACFP-participating providers receive information about federal nutritional guidelines, although providers retain discretion in menu planning (Fleischhacker, Cason, & Achterberg, 2006; Oakley, Bomba, Knight, & Byrd, 1995). For children aged three to five, CACFP meal patterns recommend that, for breakfast, children have three-fourths cup of milk, one-half cup of a fruit or vegetable, and one-half slice or one-half serving of a grain. For lunch or supper, three- to five-year olds should consume three-fourths cup milk, two half-cup servings of a fruit or vegetable, one serving of a grain or bread, and one serving of meat or meat alternate. A lunch time serving of meat for a three- to five-year-old is 1.5 ounces, although meal patterns include a variety of alternates such as a six ounce serving of yogurt. Snacks must include two of the following four components: one-half cup of milk, one fruit or vegetable, one grain or bread, or one meat or meat alternative (U.S. Department of Agriculture, 2009).

Thus, information provided in the CACFP guidelines has the potential to improve dietary quality by increasing children's consumption of milk, fruits, vegetables, and grains and by reducing their consumption of less nutritious foods such as sweet snacks, sodas, or fruit-flavored drinks. Moreover, periodic monitoring provides incentives to adhere to the guidelines so as not to risk losing funding. Providers must keep daily documentation of planned menus and any deviations from plans including a record of the foods and drinks served for meals and snacks each day. They must also record program enrollment, attendance, and the number of meals served. Upon request, providers must produce these records for review.

Reimbursements for meals also increases resources available to CACFP-participating providers and may allow providers to increase the quantity or quality of food provided relative to non-participating settings. If the quantity of food is increased, then some low-income children will meet calorie needs and be less likely to be underweight when care occurs in a participating setting rather than a non-participating setting. However, whether and how changes in diet affect weight is uncertain because weight is determined by net caloric intake; and, whereas some CACFP-recommended foods such as vegetables have few calories, other nutritious foods, such as whole milk and fruit juice, do not. The potentially greater quantity and quality of food consumed at CACFP-participating settings should also improve children's food security unless parents alter the food served to children at home to offset the food their children eat in child care, which seems unlikely (Nord, 2009).

On the other hand, providers have latitude in food menus and monitoring of meals is imperfect. Further, children may not eat the food that is served. Thus, CACFP participation may have little effect on food intake. Evidence on provider adherence to menu requirements is mixed. Some studies find relatively good adherence. For example, Crepinsek et al. (2002) found that, in home care settings, over 90% of breakfasts, lunches, and snacks met the meal pattern requirements. In addition, the Feeding Infants and Toddlers Study (FITS) showed that children consumed more milk, fruits and vegetables during lunches served at child care than during lunches served

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