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Research report

Food preparation supplies predict children's family meal and home-prepared dinner consumption in low-income households ☆

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ABSTRACT

Frequent family meals and home food preparation are considered important for children's nutritional health and weight maintenance. This cross-sectional study tested whether these parent-driven behaviors are related to the availability of food preparation supplies in low-income urban households. Caregivers of children ages 6–13 provided information on family meal frequency, child consumption of home-prepared dinners, household food insecurity, and attitudes towards cooking. Researchers used a newly developed Food Preparation Checklist (FPC) to assess the availability of 41 food preparation supplies during a physical audit of the home environment. Caregivers and children provided anthropometric measurements and jointly reported on child dietary intake. In ordinal logistic regression models, greater home availability of food preparation supplies was associated with more frequent family meals and child consumption of home-prepared dinners. Associations were independent of household financial strain, food insecurity, caregiver attitudes toward cooking, and sociodemographic characteristics. Fewer food preparation supplies were available in households characterized by greater food insecurity, lower income, and negative caregiver attitudes towards cooking, but did not differ by child or caregiver weight status. As in prior studies, more frequent family meals and consumption of home-prepared dinners were associated with healthier child dietary intake in several areas. We conclude that food preparation supplies are often limited in the most socioeconomically disadvantaged households, and their availability is related to the frequency with which children consume family meals and home-prepared dinners. The potential role of food preparation supplies as contributors to socioeconomic disparities in child nutritional health and obesity deserves further study.

Introduction

Parent behaviors such as eating together as a family and preparing meals at home have an important role in socioecological models of child obesity risk (Davison, Lawson, & Coatsworth, 2012; Fiese, Hammons, & Grigsby-Toussaint, 2012). Cross-sectional and longitudinal studies support associations between frequent family meals and greater intake of healthy foods, lower intake of unhealthy foods, and lower risk of disordered eating in children and adolescents (Hammons & Fiese, 2011; Larson et al., 2013; Neumark-Sztainer, Eisenberg, Fulkerson, Story, & Larson, 2008). Though more rigorous studies are needed (Valdes, Rodriguez-Artalejo, Aguilar, Jaen-Casquero, & Royo-Bordonada, 2013), the literature also suggests an overall association between more frequent family meals and lower risk for child overweight/obesity (Goldfield et al., 2011; Hammons & Fiese, 2011; Larson et al., 2013). Americans are now cooking meals at home less often; time spent by women preparing and cleaning up food has decreased from 92 min per day in the 1970s to 51 min per day, whereas time spent by men remained stable at less than 20 min per day (Zick & Stevens, 2010). The proportion of children's daily energy eaten away from home has also increased from 23% to 33% of total intake since the 1970s (Poti & Popkin, 2011). This is problematic because intake of away-from-home meals is associated with greater overall

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intake of energy, total fat, saturated fat, and sugar in children and adolescents, with the strongest associations observed in those from lower-income households (Powell & Nguyen, 2013).

Identifying influences on family meal frequency may be important for understanding and addressing documented socioeconomic disparities in child obesity (Ogden, Lamb, Carroll, & Flegal, 2010). Family meals are more frequent in households of higher socioeconomic status (SES) (Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003), and family meal frequency has been declining in low-SES households relative to middle- and high-SES households (Neumark-Sztainer, Wall, Fulkerson, & Larson, 2013).

Very few studies have examined environmental barriers to frequent family meals and home meal preparation in low-income households. One potential barrier is a lack of meal preparation supplies in the home. Caregivers who would otherwise prepare meals at home may not do so if they lack the supplies and equipment that make cooking simpler, less effortful, and less time-consuming. Just as the availability of healthy and unhealthy foods in the home environment predicts dietary intake (Campbell et al., 2007; Fulkerson et al., 2008; Vereecken, Haerens, De Bourdeaudhuij, & Maes, 2010), the availability of food preparation supplies in the home may represent a modifiable determinant of home-prepared dinner consumption and family meal frequency. Understanding factors that promote more frequent family meals at home is important because home meal preparation is a foundational skill addressed in many dietary interventions for obesity and diabetes (Alexander, Grant, Pedrino, & Lyons, 2014; Archuleta et al., 2012; Bielamowicz, Pope, & Rice, 2013; Fulkerson et al., 2010; Thomas & Irwin, 2011), and the presence of barriers to home meal preparation could hinder treatment success.

This study tested whether the availability of food preparation supplies in the home is associated with family meal frequency and child consumption of home-prepared dinners in low-income urban households. We also evaluated the extent to which these associations were independent of several potential confounding factors, including caregiver's negative attitudes towards cooking, household financial strain, and household food insecurity. Consistent with the Theory of Planned Behavior (Ajzen, 1991), which holds that specific behaviors follow from dispositional attitudes towards the behavior and its outcomes, parents who have negative attitudes towards cooking may be less likely to both equip their household with food preparation supplies and to prepare meals at home. Similarly, a lack of food preparation supplies in low-income households may reflect the presence of financial strain, and the inability to pay for basic necessities such as electricity and heating would interfere with cooking. Food insecurity, the lack of reliable access to acceptable healthy foods, may also impede home food preparation and family meals in low-income households. Food insecurity has been implicated as a mediator in the pathway from socioeconomic disadvantage to child obesity risk, but findings have been inconsistent (Larson & Story, 2011) and food insecurity was not associated with family meal frequency or meal preparation in one recent study (Bruening, MacLehose, Loth, Story, & Neumark-Sztainer, 2012). Drawing on a socioecological framework in which a set of nested psychobiologic, sociocultural, and environmental factors jointly influence health behavior (Booth et al., 2001), we hypothesized that households with fewer meal preparation supplies would report less frequent family meals and less frequent child consumption of home-prepared dinners, independent of negative attitudes towards meal preparation, financial strain, food insecurity, and sociodemographic characteristics. Associations between family meal frequency and home-prepared dinner consumption with child dietary intake, child weight status, and primary caregiver weight status were also explored.

Method

This report describes a secondary analysis of data from the *Home Environment Comparison Study (HECS)*, a cross-sectional study designed to identify aspects of the home environment associated with childhood obesity risk in a low-income, urban population. Briefly, the parent study involved detailed audit-based assessments by research staff of the foods, media and physical activity equipment, and household resources (e.g., automobiles, internet access) available in the home environments of households with either all normal weight children or with predominantly overweight/obese children. Other variables assessed included household eating and activity routines, child dietary intake and sleep duration, and accelerometer-based estimates of physical and sedentary activity.

Subjects

Households were recruited through study advertisements posted on the Rush University Medical Center campus and internet posting forums (i.e., craigslist.org), pediatrician referrals, and word-of-mouth. Advertisements described the project as a study of the role of the home environment in children's eating habits and activity levels. Interested individuals contacted the research team to complete a telephone screening. The study included low-income households with at least one child between ages 6 and 13 years. Eligible households were located in the city of Chicago and had an annual household income $\leqslant$250% of the Federal Poverty Threshold. Recruitment focused on households with either all normal weight children or predominantly overweight/obese children. In normal weight households, all children ages 6–18 years had a body mass index <85th percentile for their age and sex. In overweight/obese households, at least 50% of children had a body mass index $\geqslant$85th percentile for their age and sex. Households in which 1–49% of children ages 6–18 were overweight or obese were excluded from the study to maximize observed group differences. Exclusion criteria included (1) serious physical illness or developmental problem in any child ages 6–13 (e.g., autism, paraplegia), (2) serious physical or psychiatric illness in a primary caregiver, (3) living in temporary or group housing or planning to move within 2 months, (4) lack of reliable telephone access, (5) lack of verbal fluency in English, or (6) unwilling to meet with researchers in the home. Eligible participants scheduled a 2-h assessment visit at the end of the telephone screening. Assessments took place at the child's primary residence. Objective height and weight measurements were taken at the beginning of the assessment visit as a final step in determining eligibility. Of 154 household screened, 103 (67%) households qualified for the study. All 103 eligible households enrolled in the study.

For measures of dietary intake, data collection focused on one index child in each household. The index child was identified as the child between ages 6 and 13 with the highest BMI percentile in overweight/obese weight households, and the lowest BMI percentile in normal weight households. Index children were selected in this way to maximize potential differences between groups. The adult caregiver who reported making the majority of food purchases for the household was identified as the index caregiver and served as the key respondent for survey measures. All questionnaires were administered verbally by the research assistant. The study was conducted in accordance with the Declaration of Helsinki. The Rush University Medical Center Institutional Review Board approved study procedures. Written informed consent from a primary caregiver and written child assent were obtained. Households received $60.00 for completing the entire study.