



## Consumption of key food groups during the postpartum period in low-income, non-Hispanic black mothers



Melissa C. Kay<sup>a,\*</sup>, Heather Wasser<sup>a</sup>, Linda S. Adair<sup>a</sup>, Amanda L. Thompson<sup>a,b</sup>, Anna Maria Siega-Riz<sup>a,c</sup>, Chirayath M. Suchindran<sup>d</sup>, Margaret E. Bentley<sup>a</sup>

<sup>a</sup> Department of Nutrition, University of North Carolina at Chapel Hill, Carolina Population Center, 137 E. Franklin St, CB 8120, Chapel Hill, NC 27516, United States

<sup>b</sup> Department of Anthropology, University of North Carolina at Chapel Hill, 209-A Alumni Bldg, 3115 Chapel Hill, NC 27599, United States

<sup>c</sup> Department of Public Health Sciences, University of Virginia, P.O. Box 800717, Charlottesville, VA 22908, United States

<sup>d</sup> Department of Biostatistics, University of North Carolina at Chapel Hill, 3103-A McGavran–Greenberg Hl, CB 7420, Chapel Hill, NC 27599, United States

### ARTICLE INFO

#### Article history:

Received 24 October 2016

Received in revised form

14 May 2017

Accepted 21 June 2017

Available online 23 June 2017

#### Keywords:

Obesity

Mother

Diet

Postpartum

Dietary guidelines

### ABSTRACT

The postpartum period can impact diet quality and subsequently place women at greater risk for overweight or obesity. This study examined consumption of key food groups during the first 2 years postpartum among low income, non-Hispanic black, first-time mothers. Data were from the Infant Care, Feeding and Risk of Obesity Study, a cohort of 217 mother–infant dyads, followed from 3 to 18 months postpartum, collected from 2003 to 2007. At each study visit (3, 6, 9, 12, and 18 months) 24-h dietary recalls were collected. Consumption levels were compared to those recommended from the 2010 *Dietary Guidelines for Americans* (DGAs) for each of the following food groups: fruits, vegetables, grains, whole grains, protein foods and dairy, as well as an estimated upper limit for sugar-sweetened beverage (SSB) consumption. At each time point, mothers met recommended intake levels for grains and protein foods only. In random-intercept logistic regression models, no demographic or household characteristics were associated with a likelihood of consuming recommended levels for any of the food groups according to the DGAs. Given the low intake of fruits, vegetables, whole grains and lean protein foods and high intake of SSBs and refined grains, interventions targeting women's diet during the postpartum period are warranted.

© 2017 Elsevier Ltd. All rights reserved.

### 1. Introduction

The postpartum period marks a significant life transition that can impact diet quality and subsequently place women at greater risk for overweight or obesity. The prevalence of overweight or obesity ( $BMI \geq 25$ ) among women of childbearing age is 58.5% (51.4–65.2), but among non-Hispanic black (NHB) women of the same age the prevalence is 80.0% (72.6–85.8) (Ogden, Carroll, Kit, & Flegal, 2014). Although some women adopt healthier eating patterns during pregnancy (Fowles & Gabrielson, 2005; Fowles, Hendricks, & Walker, 2005), many discontinue these habits postpartum (George, Hanss-Nuss, Milani, & Freeland-Graves, 2005;

Walker et al., 2004; Wiltheiss et al., 2013). This may be due to stress from increased financial and time demands; food choices based on convenience as well as limited affordability and access to healthy foods may result in suboptimal diet quality, particularly among low-income women (Eikenberry & Smith, 2004; Reyes, Klotz, & Herring, 2013). NHB mothers in particular have been shown to have lower diet quality, higher risk of depression and greater amounts of weight retained during the postpartum period compared to non-Hispanic white (NHW) mothers (Everson, Maty, Lynch, & Kaplan, 2002; Gillman et al., 2001; Hoerr, Tsuei, Liu, Franklin, & Nicklas, 2008; Siega-Riz, Evenson, & Dole, 2004).

Additionally, maternal diet in the postpartum period is considered a key determinant of infant diet (Howard, Mallan, Byrne, Magarey, & Daniels, 2012; Wen, Simpson, Rissel, & Baur, 2013). Maternal diet in general influences foods available in the home and consequently those offered during weaning. Infants who consume nutrient-poor foods such as sugar-sweetened beverages (SSBs), desserts and sweets in place of nutrient-rich foods such as fruits

\* Corresponding author. Carolina Population Center, 123 W. Franklin St University Square, CB#8120, Chapel Hill, NC 27516, United States.

E-mail addresses: [melissa@unc.edu](mailto:melissa@unc.edu) (M.C. Kay), [althomps@email.unc.edu](mailto:althomps@email.unc.edu) (A.L. Thompson), [siegariz@virginia.edu](mailto:siegariz@virginia.edu) (A.M. Siega-Riz), [suchindran@unc.edu](mailto:suchindran@unc.edu) (C.M. Suchindran).

and vegetables (F&V) are at greater risk for obesity later in life (Dattilo et al., 2012; Golley et al., 2013; Park, Pan, Sherry, & Li, 2014). For lactating women, what they eat can influence their child's palate and acceptance of solid foods during the weaning process as well as taste preferences later in life (Birch & Fisher, 1998; Savage, Fisher, & Birch, 2007). Thus, understanding maternal consumption of such food groups is important not only for adult obesity rates, but also to prevent future risk of obesity in children.

Recommendations for optimal diet quality to help achieve and maintain a healthy weight, promote health, and prevent disease exist through the *Dietary Guidelines for Americans* (DGAs) (U.S. Department of Agriculture and U.S. Department of Health and Human Services, December 2010). The DGAs encourage Americans to focus on foods and beverages that promote a healthy diet; this includes recommendations to increase the consumption of F&V and to decrease the consumption of foods high in added sugar, refined grains and saturated fat. Data have consistently shown that many Americans fail to meet recommended levels of intake of these food groups. Only 17.5% of adult females (age 18 and older) consume recommended amounts of fruit, 9.8% consume recommended amounts of vegetables, and less than 2% consume the recommended amount of whole grains (Moore et al., 2015; U.S. Department of Agriculture, Agricultural Research Service, 2013). The DGAs also include a discretionary calorie allowance, which provides caloric limits for excess energy from solid fats, alcoholic beverages, and added sugars. These “empty calories”, or sources of energy with little to no nutritional value, contribute more than the recommended amount in adult diets, with over 85% of women aged 19–30 exceeding the recommended limit per day (U.S. Department of Agriculture, Agricultural Research Service, 2013). For example, women aged 20–39 consume an average of 275 kcals per day from added sugars; an amount in excess of the recommended maximum of 258 kcals per day from *all* added sugars and solid fats (Ervin & Ogden, 2013).

Little research has been done to examine consumption of key food groups among women during the postpartum period and whether adhering to recommended intake levels is associated with various predictors of diet such as education, employment, age, weight, depression and breastfeeding (Fowles & Walker, 2006; George, Milani, Hanss-Nuss, & Freeland-Graves, 2005; Olson, 2005). Gaining insight into intake levels of such foods among postpartum women may identify important factors that influence diet and can be used in intervention studies for the purpose of improving the diets of both mothers and children. The purpose of this study is to (1) describe consumption levels of key food groups in a prospective cohort of first-time, NHB mothers from 3 to 18 months postpartum and to assess intake levels based on comparison to the 2010 DGA, and (2) identify predictors of intake so that results can be used to guide nutrition interventions aimed at influencing maternal diet.

## 2. Methods

### 2.1. Study design

Data come from the Infant Care, Feeding and Risk of Obesity Project (Infant Care), a longitudinal, observational cohort study of first-time, NHB mothers aged 18–35 years who were recruited through the North Carolina Supplemental Nutrition Program for Women Infants and Children (WIC) ( $n = 217$ ) (Laraia, Borja, & Bentley, 2009; Sacco, Bentley, Carby-Shields, Borja, & Goldman, 2007; Thompson & Bentley, 2013; Thompson, Adair, & Bentley, 2013a; Thompson, Adair, & Bentley, 2013b; H.; Wasser et al., 2011, 2013; H. M.). Mothers and infants were followed with in-home visits when infants were 3, 6, 9, 12, and 18 months of age. At each

home visit, a wide array of maternal, infant and household characteristics were assessed through questionnaires. Mothers were excluded if their infant was not full term; was <2500 or  $\geq 4500$  g in birth weight; had chronic or congenital illness; required medical treatment that interferes with dietary intake, growth, or development (e.g., Down's syndrome, cerebral palsy, epilepsy, diagnosed mental retardation, cleft lip or palate); or presented with failure-to-thrive. Data collection began in November 2003 and was completed in October 2007. The overall study is described in detail elsewhere (Laraia et al., 2009). The protocol was approved by the School of Public Health Institutional Review Board at the University of North Carolina at Chapel Hill.

## 3. Measures

### 3.1. Maternal dietary intake

Dietary intake was assessed at each home visit with one computerized 24-h dietary recall (24HDR) administered using the Nutrient Data System for Research (NDS-R™) (version 2005; Nutrition Coordinating Center, University of Minnesota, Minneapolis, MN). The NDS-R™ is comprehensive nutrient calculation software that includes more than 18,000 foods and over 8000 brand-name foods. To ensure accuracy, all study personnel were trained to use the software by an NDS-R™ certified staff member of the Nutrition Obesity Research Center (NORC) at the University of North Carolina at Chapel Hill. Food models and pictures were used to aid in the estimation of portion sizes.

Food groups were defined according to the DGAs: fruits (including 100% fruit juice), vegetables (excluding fried vegetables), total grains, whole grains, dairy and protein foods (meat, poultry, seafood, eggs, soy products and nuts). Servings for commonly consumed and potentially obesogenic foods, such as SSBs and fried vegetables, which include French fries, hash browns and onion rings, were also obtained. Servings from each of the specific food groups at each time point between 3 and 18 months were obtained by using the NDS-R Food Group Serving Count System. Serving sizes were based on the recommended adult servings that were current at the time the survey was delivered, which were defined per the 2005 DGAs or, for foods not recommended in the DGAs (e.g. cookies, SSBs), the food-label serving sizes from the Food and Drug Administration (FDA). The NDS-R serving sizes were then compared to the food group serving sizes recommended by MyPlate, a web-based program that personalizes recommendations based on the DGAs (<https://www.choosemyplate.gov/MyPlate-Daily-Checklist>) (U.S. Department of Agriculture, 2016). For this study, current recommendations were used, which at the time of analysis, were the 2010 DGA. Similar to Durham et al. a hypothetical referent mother was created based on the average characteristics of participants in Infant Care: 23 years old, 175lbs, 5'4", not breastfeeding and sedentary (Durham, Lovelady, Brouwer, Krause, & Ostbye, 2011). Using MyPlate, recommended food group amounts were based on a 2000 calorie diet and include: 4 servings (2 cups) of fruit, 5 servings (2.5 cups) of vegetables, 6 servings (ounces) of grains, 3 servings (ounces) of whole grains, 5.5 servings (ounces) of protein and 3 servings (cups) of dairy. There is no specific guideline for SSB intake. For a 2000 calorie diet, the FDA recommends a daily limit of 50 g from added sugars from all foods and beverages (Food and Drug Administration, HHS, 2015). The average SSB contains approximately 25–30 g of sugar per 8oz serving. Therefore, an upper limit (UL) for SSBs is estimated at 1.5 SSBs per day.

### 3.2. Predictor variables

Predictors of intake were drawn from the literature and include

Download English Version:

<https://daneshyari.com/en/article/5044070>

Download Persian Version:

<https://daneshyari.com/article/5044070>

[Daneshyari.com](https://daneshyari.com)