The Global
Fruit & Veg Newsletter

n° 36

October
2018

RECENT NEWS ON THE SPECIAL SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS AND CHILDREN (WIC)

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is designed to respond to the nutrition and health needs of low-income mothers and young children in the United States. WIC serves pregnant and post-partum women, infants, and children up to age 5. In existence since 1975, the program currently serves nearly 7.3 million individuals annually and supports 53 percent of all infants born in the US.

WIC provides nutrition education, breastfeeding support, nutritious foods, and referrals to health and social services. The foods are provided in a pre-determined package, which includes fruit and vegetables, infant foods, low-fat dairy items, whole grains, peanut butter, legumes, eggs, juice, and iron-fortified infant formula. The food package is designed to assure healthy pregnancies and birth outcomes and support the healthy growth and development of babies, toddlers, and young children.

WIC has made great strides in increasing participants' consumption of fruit and vegetables. With the 2009 food package changes, WIC participants have been able to purchase fruit and vegetables through the program. Since these changes, studies have shown improved access to healthy foods for both WIC participants and the larger community as well as increased consumption of fruit and vegetables. In January 2017, the National Academies of Sciences, Engineering, and Medicine made recommendations for changes to the current food package to increase flexibility and choice. If accepted, these recommendations will further increase access to fruit and vegetables among WIC participants by allowing the substitution of juice and infant jarred fruit and vegetables.

The WIC program has benefited greatly from evaluations and high-quality research focused on its impact. Research that demonstrates how WIC participation impacts behavior change is crucial to revealing WIC's positive impact on low-income families. We are pleased to share with you three articles that illustrate WIC's positive effects.

The Rev. Douglas A. Greenaway
President & CEO
National WIC Association, USA

Editions available in: English: www.aprifel.com / www.freshfel.org / www.kauppapuutarhaliitto.fi / www.unitedfresh.co.nz / www.5amtag.ch / www.halfyourplate.ca
French: www.aprifel.com
Spanish: www.5aldia.org

APRIFEL Agency for the Research and Information on Fruit and Vegetables
4 rue de Trévise 75009 Paris – France
GLOBAL FRUIT & VEG NEWSLETTER Secretariat : gfvn@interfel.com

Federal Nutrition Program Revisions Impact Low-income Households' Food Purchases

SW. Ng et al.

Department of Nutrition and Carolina Population Center, University of North Carolina, USA

In 2009, the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) required revisions to improve variety and flexibility in WIC food packages and align them with the 2005 Dietary Guidelines for Americans and the American Academy of Pediatrics infant feeding guidelines. These revisions included:

- **New foods**: whole-grain bread and cereals, fruit and vegetables (F&V);
- **Addition** of F&V cash value vouchers;
- **Reductions** in milk, juice, egg, and cheese;
- **Switch** from whole milk to 2% milk for children (≥ 2 years old) and women[1].

The aim of this study is to examine associations between WIC revisions and nutritional profiles of packaged food and beverage purchases (PFP) among 4537 low-income households (WIC participants and non-participants) with preschoolers in the US from 2008 to 2014 (3 periods: 2008-2009; 2010-2011 and 2013-2014).

Nutrients profile of purchased foods following WIC revisions

Overall nutrients purchased by the household during each quarter for total PFPs were measured among WIC and non-WIC participants. WIC households have purchased significantly fewer calories from pre-revision to late revision (11% decrease per capita/day). Non-WIC households have also decreased significantly, but smaller, their calories purchase (6% decrease per capita/day).

WIC and non-WIC households have also decreased significantly their sodium purchase (approximately 12% decrease per capita/day for both).

WIC households have declined their total sugar purchase (14.75% decrease per capita/day) due mostly to a significant decrease in sugar sweetened beverages (SSBs) purchase, while non-WIC households had a smaller decrease (10% decrease per capita/day).

Total fat purchased decreased by 10% among WIC households and 5% among non-WIC households.

Meanwhile there were no significant changes for protein or fiber. No significant differences in nutrients purchased in pre- or post-revision periods were found between WIC and non-WIC households.

Amount of select food groups purchased following WIC revisions

• F&V

Amounts purchased of each food and beverage group were measured for each time period. Figure 1 shows an increased purchase of F&V with no added sugar, fats, oils and/or salt among WIC households. Non-WIC households have also increased their F&V purchases over time.

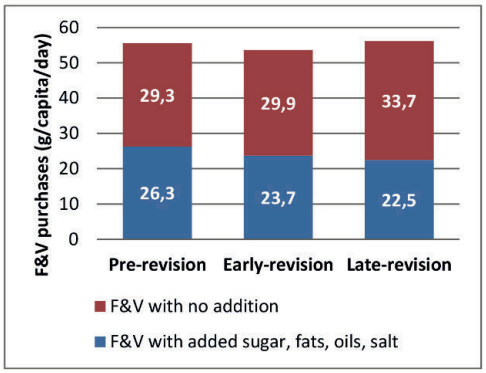

Figure 1: F&V purchases by WIC households between 2008 and 2014

• Grain items

No significant increase was seen in purchase of grain items (i.e. bread, rice, tortillas) for both households. Meanwhile, there was a significant decrease among WIC households of daily purchases of refined grain items (23% decrease per capita/day).

• Unhealthy foods

For sugar sweetened beverages (SSB), WIC households decreased 18% their purchases over time while non-WIC households purchased 13% less. No significant differences were found between WIC and non-WIC households in purchases of grain-based desserts, snacks or candy; they both reduced their grain based desserts purchase by 10 % while there was no significant change for both in purchase of sweet or savory snacks, and candy over time.

WIC food package revisions seem to improve nutritional profiles among WIC households, compared to non-WIC households. These findings confirm that updating policies can meaningfully influence WIC participants and their families by making healthier choices among their purchases.

Based on: Ng SW, Hollingsworth BA, Busey EA, Wandell JL, Miles DR, Poti JM. Federal Nutrition Program Revisions Impact Low-income Households' Food Purchases. Am J Prev 2018; 54(3): 403-412.

Reference

1. U.S. Department of Agriculture, Food and Nutrition Service. Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Revisions in the WIC Food Packages Interim Rule. December 6, 2007. Accessed May 10, 2017.

Trends in obesity prevalence among WIC-enrolled children: Differences by socioeconomic characteristics

TZ. Nobari[a,b]

a. UCLA Fielding School of Public Health, Department of Community Health Sciences, Los Angeles, CA, USA
b. Public Health Foundation Enterprises WIC Program, Irwindale, CA, USA

In the United States, an inverse relationship between socioeconomic status (SES) and childhood obesity exists[1]*. The trends in obesity prevalence by SES among WIC-participating children are rarely studied because only low-income children can participate in WIC. However, recent efforts have begun to examine obesity trends among these children by SES*[2] *since this information can inform policy and program development for this population.*

This study examined whether secular trends in early childhood obesity varied according to SES among WIC-enrolled preschool-aged children in Los Angeles County (LAC) from 2003 to 2014.

We used administrative data containing sociodemographic and anthropometric information on 2-4-year-olds participating in WIC in LAC from 2003 to 2014. Children's heights and weights were measured during clinic visits by trained WIC staff. Obesity status was defined as having a BMI ≥ 95th percentile of CDC's gender- and age-specific growth reference values[3]. SES was operationalized as :

- household income, a percentage of the federal poverty level (FPL), and
- household education, the highest grade completed by the child's caregiver.

Within each age group, the trends in obesity prevalence were examined by SES. The sample included 739,893 2-year-olds, 708,349 3-year-olds, and 568,816 4-year-olds. Statistically significant differences between trends were assessed and average annual percent changes in obesity prevalence over the entire 12-year time period were examined.

Trends in obesity by child's age

The overall secular trend in obesity prevalence in our study significantly increased from 15.7% in 2003 to 19.1% in 2005, remained relatively constant until 2010, then decreased to17.6% in 2014 (Figure 1).

Two and 3-year-olds experienced the greatest overall increase in obesity prevalence from 2003 to 2014.

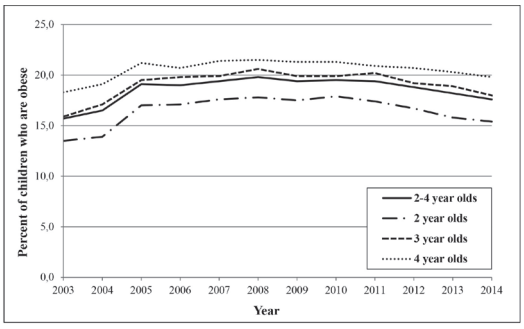

Figure 1. Trends in obesity prevalence among WIC-participating children by age: Los Angeles County, 2003-2014

Trends in obesity by household income

At every year and across all three age groups, obesity prevalence tended to be higher among children living in the lowest income households. Despite decreasing since 2010, obesity prevalence in 2014 was higher than in 2003 for all children but the least poor. It decreased to 2003 levels for 3- and 4-year-olds from households at >133% FPL and > 100% FPL, respectively. The prevalence of obesity worsened among 3- and 4-year-olds from poor households (<100%FPL) but not from low-income households (>100% FPL).

Trends in obesity by household education

A pronounced and consistent gradient in obesity by household education existed at every year and across all three age groups with children in the lowest educated households experiencing the highest rates of obesity. Similar to household income, obesity prevalence in 2014 was higher than in 2003 for most children although it decreased to 2003 levels for 2- and 4-year-olds from college-educated households. Overall obesity did not change for the higher-educated households during the study's 12 years. However, it worsened among the lower-educated households (i.e., households without a college degree among 2-year-olds, and households with a high-school degree or less among 3- and 4-year-olds).

Next steps…

The decreasing trend between 2010 and 2014 is encouraging and mirrors national trends among WIC-participating children[4]. However, differences exist by child's SES. Children from less educated and poorer households experienced significant overall increases in obesity prevalence from 2003 to 2014 while children from more educated and less poor households generally did not experience a significant change (Figure 2). These socioeconomic differences may be partially due to the capacity of these less poor and more educated households to more readily take advantage of obesity-prevention efforts.

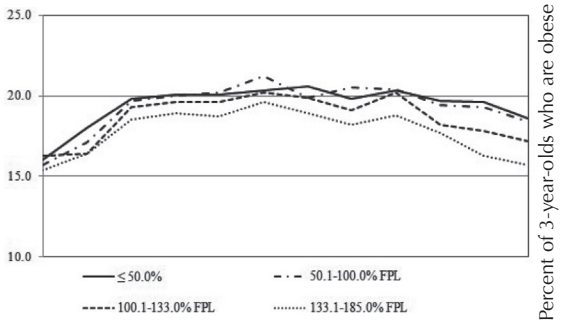

Figure 2. Trends in obesity by household income among WIC-participating 3-year-olds: Los Angeles County, 2003-14

In the fight against childhood obesity, low-income families' socioeconomic circumstances should be targeted, as they are at increased risk of obesity and may not be reaping the greatest benefit from obesity-prevention efforts. Every effort should be made to target obesity risk factors during a child's first two years as by age 2 socioeconomic disparities in obesity already exist. Additional studies should explore the role of SES on early childhood obesity among low-income children and the most effective interventions for these vulnerable children.

Based on: Nobari TZ, Whaley SE, Prelip M, Crespi CM, Wang MC. (2018) Trends in obesity by socioeconomic status among WIC children in Los Angeles County, 2003-2014. Childhood Obesity 2018; 14(4):248-258. Permission was given by the publisher, Mary Ann Liebert, Inc., New Rochelle, NY, for this summary and use of the images.

References

1. Ogden CL, Carroll MD, Fakhouri TH, et al. Prevalence of obesity among youths by household income and education level of head of household - United States 2011-2014. MMWR Morb Mortal Wkly Rep 2018;67(6):186-189.

2. Freedman DS, Sharma AJ, Hamner HC, et al. Trends in weight-for-length among infants in WIC from 2000 to 2014. Pediatrics 2017;139(1).

3. Kuczmarski RJ, Ogden CL, Guo SS, et al. 2000 CDC Growth Charts for the United States: methods and development. Vital Health Stat 11 2002;(246):1-190.

4. Pan L, Freedman DS, Sharma AJ, et al. Trends in obesity among participants aged 2–4 years in the Special Supplemental Nutrition Program for Women, Infants, and Children — United States, 2000–2014. MMWR Morb Mortal Wkly Rep 2016;65(45):1256-1260

Consumption of 100% fruit juice, whole fruit, and vegetables among WIC-enrolled children compared to nonparticipants

KA. Vercammen, AJ. Moran, LY. Zatz, and EB. Rimm

Harvard T. H. Chan School of Public Health, USA

There is controversy around the amount of 100% fruit juice allocated to children as part of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) food package. While 100% fruit juice provides some essential vitamins and minerals, the bulk of the evidence suggests that consumption may be harmful to children's health since juice provides nearly as much sugar as a can of soda, and lacks the health benefits of whole fruit[1]. While intake of certain fruit has been associated with positive health outcomes (e.g., reduced risk of diabetes), fruit juice consumption seems to do just the opposite[2], and is linked to weight gain and dental caries among young children[3]. Further, there is some evidence that consuming fruit juice in early childhood increases children's preferences for sweet taste and leads to greater consumption of other sugary beverages, like soda, later in life[4].

Despite recently reducing the fruit juice allotment by nearly half, the WIC food package currently includes 128 ounces of 100% fruit juice, which provides 71% to 108% of the upper limit recommended by the American Academy of Pediatrics (AAP). The current allowance for juice may be too high for several reasons. First, WIC is intended to be supplemental, and it is possible that families are already purchasing fruit juice through other means, such as with cash or Supplemental Nutrition Assistant Program (SNAP) benefits. Second, many children enrolled in WIC also participate in other nutrition assistance programs that serve juice (e.g., Head Start). Thus, children participating in WIC may have access to more fruit juice and may be more likely to exceed the AAP recommendations than nonparticipants. To test this hypothesis, we used national data to compare 100% fruit juice, whole fruit, and vegetable intake between WIC-enrolled children, income-eligible nonparticipants, and higher income nonparticipants following the 2009 revisions to the WIC food package.

Nationally representative data source of WIC-enrolled children and nonparticipants

Data for this analysis comes from the National Health and Nutrition Examination Surveys (NHANES), a nationally representative survey of the health and nutrition status of Americans. To obtain a sufficient analytical sample, we pooled together three NHANES surveys from 2009-2014. We included 1,576 children aged 2-4 years, of which 677 were WIC participants, 409 were income-eligible nonparticipants (household income ≤185% of the federal poverty line), and 490 were higher-income nonparticipants (household income >185% of the federal poverty line). A child was considered a WIC participant if their household reported receiving WIC benefits in the past 12-months. To calculate 100% fruit juice, whole fruit, and vegetable intake, a 24-hour recall was used, with primary caregivers reporting on behalf of their children.

We used linear regression to examine the association between WIC participation and daily 100% fruit juice, whole fruit and vegetable intake. We used logistic regression to assess the association between WIC participation and the odds of exceeding the AAP daily recommendations for 100% fruit juice. All analyses controlled for child sex, age, race/ethnicity, and weight status, as well as parental marital status, education, income-to-poverty ratio, and SNAP participation.

100% fruit juice, whole fruit and vegetable intake by WIC participation status

On average, WIC-enrolled children consumed 0.77 cup-equivalents per day of 100% fruit juice (equal to 6.2 ounces day), 0.75 cup-equivalents per day of whole fruit, and 0.65 cup-equivalents per day of whole vegetables.

Compared to income-eligible nonparticipants, WIC-enrolled children consumed significantly more 100% fruit juice, with WIC-enrolled children having a 1.51-fold greater odds of exceeding the maximum intake of 100% fruit juice recommended by the AAP (Figure 1). Compared to higher-income nonparticipants, WIC-enrolled children consumed significantly fewer vegetables

Compared to income-eligible nonparticipants, WIC-enrolled children consumed significantly more 100% fruit juice, with WIC-enrolled children having a 1.51-fold greater odds of exceeding the maximum intake of 100% fruit juice recommended by the AAP (Figure 1). Compared to higher-income nonparticipants, WIC-enrolled children consumed significantly fewer vegetables.

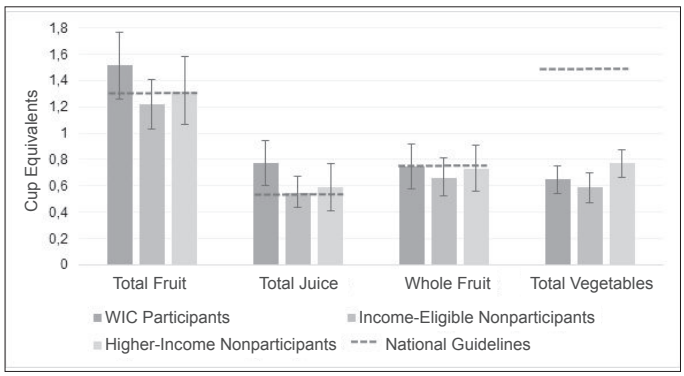

Figure 1: Adjusted Intakes of Total Fruit, Juice, Whole Fruit and Vegetables Comparing WIC Participants with Nonparticipants

Reprinted from American Journal of Preventive Medicine, 55(1), Vercammen KA, Moran AJ, Zatz LY, Rimm EB, 100% Juice, Fruit, and Vegetable Intake Among Children in the Special Supplemental Nutrition Program for Women, Infants, and Children and Nonparticipants, 11-18, Copyright (2018), with permission from Elsevier

Findings support reduction of 100% fruit juice in WIC food packages

The results of this study indicate that children participating in WIC are more likely to exceed the AAP guidelines for 100% fruit juice than income-eligible nonparticipants. Additionally, all children in the study sample had a low intake of whole fruit and an insufficient intake of vegetables. These findings support reducing the 100% fruit juice allowance in the WIC food package and re-allocating funds towards the fruit and vegetable cash value voucher[5,6].

Based on: Vercammen K, Moran A, Zatz L, Rimm E. (2018) A Comparison of 100% Fruit Juice, Whole Fruit and Vegetable Intake between Children Participating in WIC and Nonparticipants. American Journal of Preventive Medicine.

References

1. Heyman MB, Abrams SA. Fruit Juice in Infants, Children, and Adolescents: Current Recommendations. Pediatrics. 2017:e20170967.

2. Muraki I, Imamura F, Manson JE, et al. Fruit consumption and risk of type 2 diabetes: results from three prospective longitudinal cohort studies. Bmj. 2013;347:f5001.

3. Shefferly A, Scharf RJ, DeBoer MD. Longitudinal evaluation of 100% fruit juice consumption on BMI status in 2–5‐year‐old children. Pediatr Obes. 2016;11(3):221-227.

4. Sonneville KR, Long MW, Rifas‐Shiman SL, Kleinman K, Gillman MW, Taveras EM. Juice and water intake in infancy and later beverage intake and adiposity: could juice be a gateway drink? Obesity. 2015;23(1):170-176.

5. Ferris HA, Isganaitis E, Brown F. Time for an End to Juice in the Special Supplemental Nutrition Program for Women, Infants, and Children. JAMA Pediatr. 2017.

6. Nagata JM, Djafari JT, Chamberlain LJ. The option of replacing the special supplemental nutrition program for women, infants, and children fruit juice supplements with fresh fruits and vegetables. JAMA Pediatr. 2016;170(9):823-824.