

Policy implications of WIC or food stamp program participation on children's diet quality and the risk for childhood obesity

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Background

Federal food programs, such as the Supplemental Food Program for Women, Infants and Children (WIC) and the Food Stamp Program target low-income families and provide foods to the individuals who are participating. Foods and nutrient associated with health outcomes and of particular interest in the child population are the need to increase the dietary intake of fruits, vegetables, dairy and calcium, and whole grains while decreasing the consumption of added sugar. The dietary intake recommendations for these foods have changed in the recent past and are included in the newly proposed WIC food package in an effort to improve child nutrition.

Dietary intake during childhood is not only an important predictor of children's health during childhood but dietary intake patterns track into adulthood. Hence, the development of healthy eating patterns early in life is an important tool to prevent chronic diseases such as diabetes and cardiovascular disease in adults. Due to the obesity epidemic affecting adults but also children, federal nutrition programs are not only a venue to increase the availability of food in low-income families but may also increase the access and consumption of high quality foods to prevent the development of obesity other chronic diseases.

Current research indicates that children participating in WIC are more likely to meet the dietary intake recommendations for nutrients than non-participants. WIC participation has also been shown to improve children's eating patterns, significantly reducing the amount of snacking and the intake of added sugar from snacks, reducing overall added sugar intake, and increasing the likelihood of meeting the Dietary Reference Intake (DRI) for dietary fiber.

Methods

There is no single food or nutrient that might be representative of total diet quality, thus, a composite diet quality assessment score was developed and updated to reflect the latest federal dietary intake recommendations. The Revised Children's Diet Quality Index (RC-DQI) includes 12 individual nutritional components and one item to indicate overall energy balance to determine the quality of the average dietary intake in children ages 2-18 years old. Dietary intake of added sugars, total fat, specific fatty acids (linoleic acid, linolenic acid, EPA, and DHA), total grains, whole grains, fruits, vegetables, 100% fruit juice, dairy, and iron was used to determine whether children consume optimal levels of these key nutrients and foods. In addition, a energy balance component consisting of two sub components was introduced to express the ratio between children's actual and ideal energy intake (as estimated using the age and gender specific Estimated Energy Requirements (EER) of the Dietary Reference Intakes (DRI)) as well as the average number of hours spent watching TV compared to the recommendation for TV and computer time released by the American Academy of Pediatrics.

Socio-economic, nutrition, and medical examination data of children 2-18 years old (n=7,546) of the National Health and Nutrition Examination Survey (NHANES) 1999-2002 were employed to examine the diet quality in the American children. All analysis was conducted using STATA 9.2, which allowed the correction for the complex survey design and sampling techniques to maintain the nationally representative character of the data.

Findings

Total RC-DQI point scores ranged from 0-82 and younger children had better diet quality than teenagers. Four percent of preschoolers had between 90 and 100 percent of the possible RC-DQI points and only 10% scored less than 50% of the possible points. School-age children and teenagers scores on average much lower and none of either age group scored more or equal to 90 % of the possible points but 46 of the 12-18 year olds and 31% of the 6-11 year old children scored less than 50% of the possible points.

Validation of the index showed that increasing RC-DQI scores, representing better diet quality were associated with improved values of indicators of overall health, such as obesity status and blood cholesterol and total triglyceride levels.

To examine whether federal food program participation predicted whether American children were at risk to be overweight or overweight we conducted a multivariate regression using nationally representative data for children ages 2-18 years old (NHANES 1999-2002) controlling for children's age, gender, physical activity level, ethnic group, household income, preschool and school attendance, and school breakfast and school lunch participation.

Results indicate that WIC participation significantly improved children's overall diet quality. In addition, in children who were income-eligible for WIC (<1.3 PIR), the risk for being overweight was reduced by 40% compared to children who were income eligible but did not participate in the program. In food stamp eligible children (PIR <1.3), the effect was even more beneficial, in that children who participated in WIC were 57% less likely to be overweight than children in the same income group who did not participate in WIC.

Due to the dual problem of malnutrition along with over-consumption of energy and lack of physical activity, public policy on nutrition programs must be re-evaluated on a regular basis to ensure that the assistance provided addresses both of these important issues. Our data indicates that the WIC program has a significant impact on young children. WIC participation does not only improve preschooler's diet quality but also decreases the risk for childhood obesity. Encouraging WIC participation in the low-income population may be an effective public policy strategy to help prevent childhood obesity and therefore reduce the risk of chronic diseases not only during childhood but also later in life.