

Development of a Diet Quality Index for Preschool Children and its Application in Examining Dietary Trends in the U.S.

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The prevalence of childhood obesity has increased significantly in the past three decades. There are a number of negative medical consequences of obesity, including cardiovascular problems and diabetes. In addition, the dietary intake behavior of adults is strongly associated with their dietary intake behavior as children. The authors design a tool to assess total diet quality in American preschoolers: the children's diet quality index (C-DQI). The C-DQI can be used to measure the effectiveness of child nutrition programs in increasing diet quality in children, and target child nutrition programs to population groups at greatest risk of poor diet quality.

The authors use dietary and socio-demographic data from over 5000 children age two to five years old in the 1994-1996 and 1998 Continuing Survey of Food Intake in Individuals (CSFII). They design the index, using information on common nutritional problems in the preschool population and dietary intake recommendations by organizations such as the American Academy of Pediatrics, American Dietetic Association, and the National Academy of Sciences. The authors select eight components of the index which incorporate information on the recommended levels of consumption of added sugar, total fat, saturated fat, fruit, vegetables, grains, fruit juice, and iron.

The study finds that the value of the C-DQI ranges from 16 to 70 points in the population, with an average of 46 of 70 possible points. They test the index's ability to distinguish between diets with different levels of diet quality, and find that better diet quality within each of the components of the index is significantly associated with a higher overall C-DQI score. Their analysis indicates that boys have higher overall diet quality than girls, and that diet quality is higher for children living in metropolitan areas than for those living in non-metropolitan areas. Average diet quality decreases as the age of children increases. Among children living in households with low incomes, non-Hispanic blacks and non-Hispanic whites have a lower diet quality than Hispanics and other races. Children in low-income households that attend daycare or preschool have higher diet quality than those who do not, and those whose mother did not complete high school have higher diet quality than those whose mothers completed high school.

The authors also examine the trend in children's diet quality over time, by comparing C-DQI total and component scores among respondents to the National Food Consumption Survey 1977-79, the CSFII 1989-91 and the CSFII 1994-96, 1998. They find that overall diet quality improved somewhat during the study period, but that increases in consumption of added sugar, excess juice, and dairy, and a decrease in iron consumption caused declines in those components of diet quality. Consumption of fat as measured in grams per day remained stable between 1977 and the mid- to late 1990s, while consumption of fat as a percent of total calories decreased by 4 percent. The average number of servings of fruit consumed almost doubled between the early 1990s and the mid- to late 1990s, with most of the increase attributable to an increase in consumption of fruit juices. The authors note that the intake of fat and saturated fat has not decreased since 1977, despite the dissemination of public health messages that highlight the importance of reducing fat consumption.

The study results indicate that children's diet quality is influenced by the socio-demographic characteristics of the children and their families. Thus, public health messages could be targeted specifically to the population groups at greatest risk for low diet quality in an effort to improve children's health. Federal programs designed to enhance children's diet quality, such as the Supplemental Program for Women, Infants, and Children (WIC) and Head Start are targeting the children at high risk for low diet quality. The C-DQI could be used to measure the impact of federal programs, such as WIC, on overall diet quality and on the level of diet quality in the individual components of the index. The use of the C-DQI as an outcome measure will help to inform policy makers in the design and implementation of nutrition program that will most effectively increase children's overall diet quality.

2000-2001 Summary of Findings