Maternal Nutrition Knowledge and Children's Diet Quality and Nutrient Intakes.
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Abstract

We found significant evidence that the more a mother knows about health and nutrition the better is the overall quality of her children's diet, for preschoolers more so than older children. We also found that a mother's years of schooling, smoking status, race, and ethnicity influence her children's diet. Our results imply that health and nutrition education may be more effective if targeted toward mothers with young children but directly toward school-age children. We assessed overall diet quality using the Healthy Eating Index, the U.S. Department of Agriculture's instrument for measuring overall diet quality incorporating 10 recommended nutritional guidelines.

Keywords: Child nutrition, child health, Healthy Eating Index, nutrition knowledge, household production theory, latent variable model.

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Contents

Summary

We found significant evidence that greater maternal knowledge of health and nutrition leads to better diet quality for preschoolers but not necessarily for school-age children after accounting for the influence of maternal background characteristics, health habits, and household characteristics. A mother's years of schooling benefits her child's diet quality because more highly educated women tend to have more nutrition knowledge. The results closely agree with previous findings on the maternal role in children's health and nutrition obtained from a variety of samples in developing countries. We also found strong diet effects within families that are generated by the health habits of individual family members. Significant evidence was found that maternal knowledge of health and nutrition influenced children's nutrient intakes and that such influence decreased as children grow older. Our results lead to the conclusion that health and nutrition education may be more effective if targeted toward mothers with young children but directly toward school-age children.

Dietary patterns established in childhood and adolescence may significantly influence the probability of acquiring certain chronic diseases in the future. The *Dietary Guidelines for Americans* also notes that "Healthful diets help children grow, develop, and do well in school" and recommends specific intake levels for all age groups above 2 years old. Healthy dietary habits established in childhood may also be carried into adulthood. Many health authorities, therefore, recommend that parents, teachers, and other influential adults guide children in developing healthful eating patterns and acquiring information on nutrition and diet-health relationships.

For these reasons, interest in understanding the determinants of the quality of children's diets is growing. Of particular interest to nutritionists and public health officials is the role of the mother's nutrition knowledge on the diet quality of her children. This relationship has special policy interest because provision of health and nutrition information is a major tool of agencies promoting more healthful diets among Americans. Evidence on the role of maternal nutrition information in children's diets would indicate the likely social return to the continued provision of nutrition information. The role of maternal nutrition information is also of interest to economists studying children's health issues. The question of whether information plays a role after accounting for parental and family background variables is still unanswered. Most previous studies have lacked either proper measures of information or controls for all relevant background characteristics to reach a definitive conclusion.

This report studies the influence of maternal nutrition knowledge, and other maternal and household characteristics, on the overall diet quality of U.S. children ages 2-17 years old and on the intakes of individual nutrients. Much of the existing research on the maternal role in children's health and nutrition is in the economic development literature, and only a few sources have provided direct evidence on the role of information. Relatively little is known in the U.S. context about the relationship between a child's diet and the nutritional knowledge of the person responsible for meal planning or preparation, usually the mother. The existing U.S. evidence linking parental nutrition knowledge and children's intake of nutrients is mixed. Lack of controls for measurement errors and endogeneity of parental nutrition knowledge may have contributed to these inconclusive results.

We based our analysis on the household production model used by economists to study health behaviors and outcomes among individuals. A mother's influence on household productivity through factors such as diet and the nutrition of children is also a crucial aspect of economic models of the family. In these models, consumers make different health-related decisions partly because access to and costs of acquiring health information and using it efficiently varies from one individual to another: the allocative efficiency effect. For example, higher incomes may make information more accessible, and greater education may enhance the efficiency of information use. Our study examines the sources, such as a mother's education, of the relationship between a mother's knowledge of nutrition and her children's nutritional outcomes.

The first phase of the study estimated the influence of maternal nutrition knowledge, and other maternal and household characteristics, on the diet quality of children ages 2 to 17. Diet quality is measured using the Healthy Eating Index (HEI), the U.S. Department of Agriculture's (USDA) instrument for measuring overall diet quality incorporating 10 recommended nutritional guidelines. We include children from ages 2 to 17, allowing us to examine whether parental influence on children's diets diminishes as children grow older. Most dietary experts, as well as the *Dietary Guidelines for Americans* advocate a diet that contains a variety of foods and nutrients. Consequently, a measure of overall diet quality is desirable for estimating maternal influence on behaviors that are closely related to future health outcomes.

The second phase of the study uses a nationally representative sample of U.S. households to estimate the effect of maternal health and nutrition knowledge on children's intakes of fat, saturated fat, cholesterol, fiber, sodium, calcium, and iron.

Both phases used a simultaneous equations framework to control for unobserved family heterogeneity that may contaminate single-equation estimates of such relationships. Another feature of this study concerns the measurement of information. USDA data provide mothers' responses to an extensive set of questions about nutrition and health that can be used to develop direct measures of mothers' knowledge of nutrition and health. Our information measures capture the actual stock of maternal nutrition knowledge as opposed to indicators of access to information. Using latent variable methods, we also account for measurement errors and endogeneity of maternal nutrition knowledge.