

# Maternal Nutrition Knowledge and Children's Diet Quality and Nutrient Intakes

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## Introduction

Dietary patterns established in childhood and adolescence may significantly influence the probability of acquiring certain chronic diseases as an adult (Kemmer, 1987; McGill and others, 1997; McPherson, Montgomery, and Michaman, 1995; Nicklas, Farris, and Smoak, 1988). USDA's *Dietary Guidelines for Americans* notes that "Healthful diets help children grow, develop, and do well in school" and recommends intake levels for everyone over 2 years old (U.S. Dept. of Agr. and U.S. Dept. of Health and Human Services, 1995). Healthful dietary habits established in childhood may 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 and the pathways of their influence is growing among health professionals. Of particular interest to nutritionists and public health officials is the role of mothers' nutrition knowledge on the diet quality of their 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 (Thomas, 1991). Evidence on the role of maternal nutrition information in children's diets might indicate the likely social return to nutrition information provided by the government. The role of maternal nutrition information is also of interest to economists studying children's health issues. Specifically, an issue still being debated is the role of nutrition information after accounting for parental and family background (Behrman, 1995). Most previous studies have lacked either proper measures of information or controls for all relevant background characteristics to reach a definitive conclusion in this regard.

This report studies the influence of mothers' knowledge of nutrition, and other maternal and household characteristics, on the diet quality and nutrient intakes of U.S. children ages 2-17 years old. We do not focus on both mothers and fathers because of data limitations. Much of the existing research on mothers' role in their children's health and nutrition is in the economic development literature (Barrera, 1990; Behrman, 1995; Behrman and Wolfe, 1987; Haughton and Haughton, 1997; Kassouf and Senauer, 1996; Senauer and Garcia, 1991; Thomas and Strauss, 1992), and only a few have provided direct evidence on the role of information (Thomas, Strauss, and Henriques, 1991). Relatively little is known in the U.S. context about the relationship between a child's diet and the nutritional literacy 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 (Colavito and others, 1996; Klesges and others, 1991). Lack of controls for measurement errors and endogeneity of parental nutrition knowledge may have contributed to these inconclusive results.

Our analysis is based on the household production model used by economists to study health behaviors and outcomes among individuals (Behrman and Deolalikar, 1988; Rosensweig and Schultz, 1983). 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 (Behrman and Wolfe, 1987; Leibowitz, 1974; Taubman, 1977). In these models, consumers make different health-related decisions partly because access to and costs of acquiring health information as well as its efficient use varies from one individual to another: the allocative efficiency effect (Grossman and Kaestner, 1995). For example, higher incomes may make information more accessible and greater education may enhance the efficiency of information use. Our study examines the sources of the relationship between a mother's nutrition knowledge and her children's nutritional outcomes.

This study was done in two phases: 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 was measured using the Healthy Eating Index (HEI), the U.S. Department of Agriculture's (USDA) instrument for measuring overall diet quality incorporating 10 nutritional recommendations. By including children from ages 2 to 17, we can examine whether parental influence on children's diets diminishes as children grow older. This is the first analysis, to our knowledge, to focus on overall diet quality that accounts for foods, nutrients, and variety, as opposed to the intake of individual nutrients only.

The second phase of the study focused on individual nutrients and dietary components. Specifically, the effect of maternal knowledge of health and nutrition on children's intakes of total fat, saturated fat, cholesterol, fiber, sodium, calcium, and iron was estimated.

We used a simultaneous equations framework in both phases 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 maternal knowledge of health and nutrition. Our information measures capture the actual stock of maternal nutrition knowledge rather than indicators of access to information (as in Thomas, Strauss, and Henriques, 1991). Using latent variable methods, we also account for measurement errors and endogeneity of maternal nutrition knowledge.