

United States
Department of
Agriculture



Economic
Research
Service

Food Assistance
and Nutrition
Research Report
Number 19-3



Effects of Food Assistance and Nutrition Programs on Nutrition and Health

Volume 3, Literature Review

Edited by
Mary Kay Fox
William Hamilton
Biing-Hwan Lin



*Food Assistance & Nutrition
Research Program*

Effects of Food Assistance and Nutrition Programs on Nutrition and Health: Volume 3, Literature Review. Edited by Mary Kay Fox and William Hamilton, Abt Associates Inc., and Biing-Hwan Lin, Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Food Assistance and Nutrition Research Report No. 19-3.

Abstract

This report provides a comprehensive review and synthesis of published research on the impact of USDA's domestic food and nutrition assistance programs on participants' nutrition and health outcomes. The outcome measures reviewed include food expenditures, household nutrient availability, dietary intake, other measures of nutrition status, food security, birth outcomes, breastfeeding behaviors, immunization rates, use and cost of health care services, and selected nonhealth outcomes, such as academic achievement and school performance (children) and social isolation (elderly). The report is one of four volumes produced by a larger study that includes Volume 1, Research Design; Volume 2, Data Sources; Volume 3, Literature Review; and Volume 4, Executive Summary of the Literature Review. The review examines the research on 15 USDA food assistance programs but tends to focus on the largest ones for which more research is available: food stamps, school feeding programs, and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Over half of USDA's budget—\$41.6 billion in fiscal year 2003—was devoted to food assistance and nutrition programs that provide low-income families and children with access to a healthy diet.

Keywords: Dietary intake, food expenditures, nutrient availability, nutrient intake, nutritional status, nutrition and health outcomes, USDA's food assistance and nutrition programs

Acknowledgments

Many individuals deserve recognition for their roles in making this report a reality. First and foremost are the chapter authors. Without their tireless efforts, this report would not exist. Authors include current and former Abt Associates staff—Joy Behrens, Nancy Burstein, David Connell, Mary Kay Crepinsek, Mary Kay Fox, Frederic Glantz, Cristofer Price, and William Hamilton—as well as consultants—Virginia Casey, John Cook, Peter H. Rossi, and Joanne Tighe.

We also owe a debt of gratitude to a cadre of reviewers who offered thoughtful review and comment on one or more chapters of the report in one or more drafts. Their contributions improved the report. Reviewers included a team of senior advisors (Johanna Dwyer, Peter H. Rossi, and Rick Trowbridge), a group of external technical experts (Janet Currie, Barbara Deveney, Shiriki Kumanyika, Suzanne Murphy, Barry Popkin, and Mike Puma), other Abt staff members (Nancy Cole, Joan McLaughlin), and staff at USDA's Economic Research Service (Jane Reed, Betsy Frazao, Linda Ghelfi, Craig Gundersen, Joanne Guthrie, Bill Levedahl, Vic Oliveira, Mark Prell, David Smallwood, Laura Tiehen, Jay Variyam, and Parke Wilde), Food and Nutrition Service (Lisa Ramirez-Branum, Steven Carlson, Edward Herzog, Jay Hirshman, Patricia McKinney, Anita Singh, and Tracy von Ins), and Center for Nutrition Policy and Promotion (Peter Basiotis and Andrea Carlson). We offer special thanks to Johanna Dwyer and Betsy Frazao who took on reviewing tasks that were larger than most and who offered extensive and useful feedback.

Sharon Christenson and Daniel Singer deserve special recognition for coordinating the literature search as well as the document retrieval process. And, finally, several people at Abt Associates and the Economic Research Service (ERS) deserve our gratitude for managing production and editing of the report. Eileen MacEnaney and Eileen Fahey coordinated production of the report at Abt Associates. Linda Hatcher, Courtney Knauth, Sharon Lee, Tom McDonald, Victor Phillips, Mary Reardon, Dale Simms, Priscilla Smith, and John Weber completed the cover design and final editing and production at ERS.

We sincerely appreciate the efforts of all these colleagues.

Mary Kay Fox
William Hamilton
Biing-Hwan Lin

Contents

	<i>Page</i>
List of Tables	vi
Chapter 1, Introduction	1
<i>Mary Kay Fox, William Hamilton, and Sharon Christenson</i>	
Identifying Relevant Research for Review	3
Organization of This Report	7
References.....	12
Chapter 2, Research Methods	13
<i>William Hamilton, Mary Kay Fox, and Peter H. Rossi</i>	
Evaluation Design.....	13
Outcome Measures	19
References.....	27
Chapter 3, Food Stamp Program	30
<i>Nancy Burstein, Cristofer Price, Peter H. Rossi, and Mary Kay Fox</i>	
Program Overview	30
Assessing Impacts of the Food Stamp Program.....	33
Food Expenditures	35
Household Nutrient Availability	47
Individual Dietary Intake	56
Other Nutritional and Health Outcomes.....	77
Summary	84
References.....	86
Chapter 4, WIC Program	91
<i>Mary Kay Fox</i>	
Program Overview	91
Research Overview	94
Impacts of WIC Prenatal Participation.....	97
Impacts of WIC Participation on Infants and Children.....	131
Impacts of WIC Participation on WIC Households or Undifferentiated WIC Participants	165
Summary	166
References.....	168
Chapter 5, National School Lunch Program	175
<i>Mary Kay Crepinsek and Mary Kay Fox</i>	
Program Overview	175
Research Overview	178
Impacts on Dietary Intake	179
Impacts on Other Nutrition- and Health-Related Outcomes.....	197
Summary	206
References.....	208

	<i>Page</i>
Chapter 6, School Breakfast Program	211
<i>David Connell and Mary Kay Fox</i>	
Program Overview	211
Research Overview	214
Summary	233
References	234
Chapter 7, Child and Adult Care Food Program	236
<i>Frederic Glantz</i>	
Program Overview	236
Review of Research on the Child Care Component of CACFP	239
Review of Research on the Adult Care Component of CACFP	245
Summary	246
References	248
Chapter 8, Summer Food Service Program	250
<i>Joy Behrens and Mary Kay Fox</i>	
Program Overview	250
Research Review	252
Summary	254
References	255
Chapter 9, The Emergency Food Assistance Program	256
<i>John Cook</i>	
Program Overview	256
Research Review	256
Summary	259
References	260
Chapter 10, Nutrition Services Incentive Program	261
<i>Virginia Casey and Mary Kay Crepinsek</i>	
Program Overview	261
Research Overview	263
Research Results	268
Summary	282
References	284
Chapter 11, Nutrition Assistance Program in Puerto Rico, American Samoa, and the Northern Marianas	286
<i>Cristofer Price</i>	
Program Overview	286
Research Review	287
Summary	290
References	292

	<i>Page</i>
Chapter 12, Commodity Supplemental Food Program.....	293
<i>Joy Behrens</i>	
Program Overview	293
Research Review	294
Summary	295
References.....	296
Chapter 13, Food Distribution Program on Indian Reservations.....	297
<i>John Cook</i>	
Program Overview	297
Research Review	298
Summary	301
References.....	302
Chapter 14, WIC Farmers' Market Nutrition Program	304
<i>Joy Behrens</i>	
Program Overview	304
Research Review	305
Summary	306
References.....	307
Chapter 15, Special Milk Program.....	308
<i>Joy Behrens</i>	
Program Overview	308
Research Review	309
Summary	310
References.....	311
Chapter 16, Team Nutrition Initiative and Nutrition Education and Training Program	312
<i>Joanne Tighe</i>	
Overview of the Team Nutrition Initiative	312
Research Review of the Team Nutrition Initiative.....	313
Overview of the Nutrition Education and Training Program.....	315
Research Review of the Nutrition Education and Training Program.....	316
Summary	318
References.....	320

List of Tables

<i>Table</i>	<i>Page</i>
1 Federal food assistance and nutrition programs.....	2
2 Searchable databases used in computerized literature search.....	4
3 Program names, acronyms, and variants used in computerized literature search.....	5
4 Keywords used in querying searchable databases	6
5 Studies that examined the impact of the Food Stamp Program on dietary intakes of individuals [SAMPLE TABLE].....	9
6 Findings from studies that examined the impact of the Food Stamp Program on dietary intakes of individuals [SAMPLE TABLE].....	10
7 Maximum monthly food stamp benefits before deductions, FY 2003	32
8 Studies that examined the impact of the Food Stamp Program on household food expenditures	37
9 Findings from studies that examined the impact of the Food Stamp Program on household food expenditures using participant vs. nonparticipant comparisons	43
10 Findings from studies that examined the impact of the Food Stamp Program on household food expenditures using dose-response analyses	44
11 Findings from studies that examined the impact of food stamp cashout on household food expenditures	46
12 Studies that examined the impact of the Food Stamp Program on household availability of food energy and nutrients	48
13 Findings from studies that examined the impact of the Food Stamp Program on household availability of food energy and nutrients	52
14 Studies that examined the impact of the Food Stamp Program on dietary intakes of individuals	58
15 Findings from studies that examined the impact of the Food Stamp Program on dietary intakes of individuals.....	63
16 Studies that examined the impact of the Food Stamp Program on other nutrition and health outcomes	78
17 Studies that examined the impact of prenatal WIC participation on birth outcomes, including associated health care costs	98
18 Findings from studies that examined the impact of prenatal WIC participation on birth outcomes, including associated health care costs.....	109
19 Studies that examined the impact of the WIC program on breastfeeding	116
20 Findings from studies that examined the impact of the WIC program on breastfeeding	119
21 Studies that examined the impact of the WIC program on nutrition and health outcomes of pregnant women	123
22 Findings from studies that examined the impact of the WIC program on the dietary intakes of pregnant women	127
23 Studies that examined the impact of the WIC program on nutrition and health outcomes of infants and children.....	132
24 Findings from studies that examined the impact of the WIC program on the dietary intakes of children and/or infants	143
25 Findings from studies that examined the impact of the WIC program on other nutrition, health, and developmental outcomes of infants and/or children	153
26 Studies that examined the impact of the National School Lunch Program on students' dietary intakes	180

<i>Table</i>	<i>Page</i>
27 Findings from studies that examined the impact of the National School Lunch Program on students' dietary intakes at lunch.....	186
28 Findings from studies that examined the impact of the National School Lunch Program on students' dietary intakes over 24 hours	192
29 Findings from studies that examined the impact of the National School Lunch Program on students' food consumption patterns	198
30 Studies that examined the impact of the National School Lunch Program on other nutrition and health outcomes	201
31 Findings from studies that examined the impact of the National School Lunch Program on other nutrition and health outcomes	203
32 Studies that examined the impact of the School Breakfast Program on students' dietary intakes.....	215
33 Low-income students' breakfast consumption patterns by SBP availability	218
34 Findings from studies that examined the impact of the School Breakfast Program on students' dietary intakes at breakfast.....	219
35 Findings from studies that examined the impact of the School Breakfast Program on students' dietary intakes over 24 hours	223
36 Studies that examined the impact of universal-free breakfast programs on school performance and behavioral/cognitive outcomes	229
37 Findings from studies that examined the impact of universal-free breakfast programs on school performance and behavioral/cognitive outcomes	232
38 Meal reimbursement for homes and centers, July 1, 2002-June 30, 2003	238
39 Monthly administrative cost reimbursement rates for sponsors of family child care homes, July 1, 2002-June 30, 2003.....	238
40 Studies that examined the nutrient content of meals and snacks offered in the Child and Adult Care Food Program and/or the nutrient contribution of meals and snacks consumed by program participants.....	240
41 Studies that examined the impact of the Elderly Nutrition Program on nutrition and health outcomes	264
42 Findings from studies that examined the impact of the Elderly Nutrition Program on participants' dietary intakes.....	270
43 Findings from studies that examined the impact of the Elderly Nutrition Program on biochemical indicators of nutritional status.....	277
44 Findings from studies that examined the impact of the Elderly Nutrition Program on participants' weight status.....	280
45 Level 1 nutrition screen from the Nutrition Screening Initiative	282
46 Studies that examined the impact of the Nutrition Assistance Program in Puerto Rico on household food expenditures and/or nutrient availability	288