

TRENDS AND DIFFERENTIALS IN DIETARY PATTERNS AND NUTRIENT INTAKE AMONG MIGRANT PUERTO RICAN FAMILIES

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SUMMARY

Preoccupation to define the nutritional status of Puerto Rican families migrating to the United States, motivated the present research. A total of 526 families residing in the South Bronx, New York, and four communities in Puerto Rico, were therefore studied.

Results in regard to nutrient intake suggest that the mothers' diets appear to be adequate in the South Bronx as well as in Puerto Rico, except in iron consumption, in the latter. Furthermore, the data show an apparent tendency to overconsumption of certain foods in both the South Bronx and Puerto Rico, particularly of the protein group, as well as a high consumption of sugar and carbonated beverages in Puerto Rico.

Dietary data were corroborated through nutritional anthropometry, conforming a tendency for overweight and obesity among the women studied.

Detailed information on the dietary changes occurred during the last five years, is provided. Educational programs such as EFNEP, availability of new foods, and the food preferences of children in their homes, seem to be influencing factors in the dynamics of food modifications within societal groups in transition.

INTRODUCTION

Migration is one of the oldest forms of adjustment to personal difficulties or environmental change. Still today, migration remains a common

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response to economic or environmental change. Migration may be forced, as by war or natural disaster, or it may be voluntary, as when in search for greater opportunities (1). Assimilation of migrants, and their incorporation into the population at destination, set up stresses for both migrants and indigenous groups which have biological, as well as sociological consequences. The mass movements of populations are, therefore, a growing problem of world-wide concern.

Migration is also due to the pressures of rural population growth, mechanization of agriculture and investments in improved rural services which serve to increase the aspirations and migration capability of rural workers. The decision to migrate is thought to be made on the basis of the expected rural-urban income differential, or the income differential adjusted to the probability of finding an urban job.

The mixing of previously separate communities and sudden increase in population density may adversely affect the quality of housing, sanitation and distribution of food. It is obvious that successful adjustment to the new conditions requires knowledge or appreciation of the many different patterns of the population-ecosystem interaction.

Puerto Ricans have been migrating to the United States mainland for over a hundred years, but only since the end of World War II has migration taken a social and economic significance. The United States mainland and Puerto Rico represent quite different macro environments. Coming primarily from an agrarian lifestyle, another language, and different traditions, the Puerto Rican who migrated to the mainland were required to respond to changes in their environment. The United States dietary patterns have affected the migrants in terms of exposure to new foods, availability and prices of traditional foods, and changes in lifestyle which have altered their feeding habits (2-8). Brand new foods, brand new shopping experiences, and brand new decisions can be perplexing to the immigrant and threatening, too. Neighborhood Spanish groceries may carry specialties and imported traditional foods (but often at a higher price), thus allowing cultural traditions to continue.

Concern for the nutritional problems of low-income rural to urban migration has prompted this investigation, since nutritional and dietary information of Puerto Rican families who have moved to the mainland are quite scanty.

The principal objectives of the present investigation were:

- a) To measure and compare food consumption patterns of Puerto Rican families living in New York and in Puerto Rico.
- b) To determine the nutritional status of the homemakers residing in South Bronx, and in four communities in Puerto Rico, primarily through the use of two indicators: nutritional anthropometry and nutrient intake.
- c) To determine existing nutritional practices concerning food purchasing, food consumption, and changes in dietary patterns among the families under study.

It is hoped that results and implication of the study can assist in the development of nutritional strategies designed for nutrition action programs, and that the nutritional consequences of those dietary changes can be integrated in the nutrition education efforts aimed for such target

METHODOLOGY

Research Setting

As stated previously, the study took place among Puerto Rican households residing in the South Bronx, New York, and in four communities of Puerto Rico. The latter were chosen because they are located in areas of Puerto Rico from where large proportions of the sample of South Bronx households migrated. Three of these communities (Fajardo, Luquillo and Rio Grande) are located east of San Juan. They are coastal communities in contrast to the fourth (Naranjito) which is located in the highlands, southwest of San Juan.

The total Puerto Rican population living on the US mainland was estimated at 1.8 million in March 1978, more than half of whom were living within a 400-mile radius of New York City (9). During the 1970's the Puerto Rican population resident in the United States grew by 3-4% annually. The 1978 median household income for Puerto Rican families was estimated at US \$8,282/year, lower than the median income for Cuban households (US \$15,326/year) and Mexican-American households (US \$12,835/year) (10). Thus, the Puerto Rican, as a group, are the worst off economically of the Hispanic population in the United States. In 1975, the total population of the South Bronx was estimated at 274,185, of whom, 85% were classified as Hispanic.

The nutritional problems found most prevalent in the South Bronx population include inadequate intake of iron and of vitamins A and C. Also observed were high intakes of sodium, fats and refined sugars, and nutrition-related diseases include obesity, growth retardation among children, nutritional anemias, high-blood pressure, and diabetes (11).

Sample Selection Procedures

The sample base consisted of 350 Puerto Rican households which were participating in EFNEP in the South Bronx at the time of the survey in 1980. Five EFNEP aides were instructed to select each 40 households of those they normally visit as part of EFNEP activities for a total of 200 households.

Two sources of sample selection were used in Puerto Rico. In Fajardo and Naranjito this was relied on the registry of medical records. In Rio Grande and Luquillo, the registry of the participants in the WIC Program was used. Three nutritionists conducted the interviews in the four communities selected in Puerto Rico, for a total of 326 households.

The sample selection procedure used in the four communities was the same. Each household in the sample base was assigned a number. With the use of a table of random numbers, an initial sample of households was drawn, with a number of households as replacements.

The Puerto Rican and South Bronx sample generally represents low-income households. Involved here was a purposeful sampling procedure which took as the sample base households qualifying for participation in the Expanded Food and Nutrition Education Program (EFNEP), or Women, Infants and Children (WIC) Program, or which made use of public medical facilities. Generalization of findings of the study must be

confined to the low-income population in Puerto Rico and in South Bronx.

Measurements

Data were obtained by means of a pre-designed questionnaire during an interview conducted in the homes of the sample households. The questionnaire was pre-tested in the field among households living in the South Bronx. Based upon these results, the questionnaire was further modified, and an instrumentation manual was prepared for use as a back up reference by the interviewers. Training workshops were also conducted to provide specific instructions to the interviewers. The respondent was the person identified as the homemaker, i.e., the person principally responsible for food purchasing and meal preparation.

Data Variables

Demographic and socioeconomic data were obtained for each sample household: sex and age composition, level of education attainment and occupation of each household member, income, participation in public food distribution program, food expenditure, food purchasing practices and home food production. A life-time migration history of the respondent was obtained. The respondent also was asked questions related to changes in her dietary patterns during the last year and the last five years.

A 24-hour recall food intake record was obtained for the homemaker. The food intake data were converted into energy and nutrient intake using two food composition tables, one of which is specifically for Puerto Rican food and dishes (12). The energy and nutrient intake were then expressed as per cent of the 1979 National Academy of Sciences (NAS) recommended daily allowances. The nutrients analyzed were vitamins A and C, iron, calcium and riboflavin, in addition to protein and energy. Height and weight measurements were also taken of the homemaker. The latter measurements were expressed as per cent of appropriate standards found in Jelliffe (13).

RESULTS AND DISCUSSION

Sample Characteristics

The total sample of 526 households consisted of 2,434 persons. The mean homemaker's age in South Bronx was 39 vs 33 years old in Puerto Rico, while the median household size was five in Puerto Rico, vs four in the South Bronx. Comparing the South Bronx and Puerto Rico samples, a tendency for the latter to have achieved a higher level of education was observed: 20% of the South Bronx heads of household, and 29% of the Puerto Rican heads of household completed high school. This percentage was the highest in Fajardo (43.5%) and the lowest in Rio Grande (22.1%). The most frequently reported occupation of all heads of household in the South Bronx was that of housewife, due, in part, to

the fact that 52^o/o of the heads of household were females. Eighty-six per cent of the female heads of household in the South Bronx classified their primary occupation as housewife. Of the remaining heads of household in the South Bronx, 20^o/o were skilled, and 17^o/o worked in semi-skilled occupations.

Within the context of the present study, the momemaker's life-time migration history reflects her exposure to different social, cultural and economic environments. This exposure may in turn be reflected in her current food habits, food beliefs and preferences, and food purchasing behavior. The migration history of the South Bronx homemakers reveals that few (5.5^o/o) were born in the South Bronx. The majority of them moved once or twice during their lifetime. Of those who had moved at least once during their life, few (15.3^o/o) had moved within Puerto Rico. Instead, almost all (96.8^o/o) had moved directly to the US mainland. Fifty-seven per cent of those homemakers moved once from Puerto Rico and settled at once in the South Bronx, while 43^o/o moved first elsewhere in the US before settling in the South Bronx. The migration patterns that emerge is that most of the South Bronx homemakers migrated in one direction: from Puerto Rico to US mainland, either settled right away in the South Bronx, or first in another US community before arriving in the South Bronx. A considerable percentage (41^o/o) of the homemakers in Puerto Rico had never moved, e.i., were born in the communities where they were living at the time of the survey. Slightly more than one-third of the homemakers had moved once or twice, and only a few more than four times during their lifetime.

The total number of lifetime moves completed at any point in time depended on the age of the migrant. Under equal conditions, older individuals were likely to have completed more moves than the younger ones. Thus, differences in the age distribution of the respective sample of homemakers. However, it is clear that major differences in age between the various samples do not exist. Thus, in this case, the age of the homemakers may not be an important factor in explaining differences in their migration patterns.

The median household income levels in the South Bronx and Puerto Rico were comparable in 1978: \$5,518 and \$5,388/annum, respectively; nevertheless, it is worth noting that the median household size was larger in Puerto Rico. At least half of the South Bronx and Puerto Rico households fell below the established poverty level of \$5,850 for a household of four members (14).

Among the different sources of household income, food stamps were the most important in both places: 57 and 83^o/o of the households in each place, respectively, participated in the Food Stamp-Program. A higher percentage of the South Bronx households (51^o/o) received some form of public assistance as compared to Puerto Rico households (42^o/o). As expected, home gardens were virtually not present among the South Bronx households; however, for a significant percentage (55^o/o) of the Puerto Rican households, home gardens were an important source of their food supply during part of the year (15).

Food Purchasing and Consumption

It is important to examine food shopping practices since they can

be assumed to be a proxy for family food consumption.

In the present investigation, monthly food expenditures for the South Bronx were \$195.58 vs Puerto Rico = \$256.93, when compared against the monthly income mean (South Bronx = \$547.30 vs Puerto Rico = \$458.13), (1980). The percentage of income utilized for food was higher for the Puerto Rican families (56⁰/o) than for their counterparts in the South Bronx (36⁰/o). Both in South Bronx and in Puerto Rico the homemaker is basically the person responsible for the grocery shopping (88 vs 52⁰/o). A large number of the families under study did their shopping either once a week (56⁰/o), or twice per month (32⁰/o) in the South Bronx; while in Puerto Rico, most of the families did it once a week (38⁰/o), and once a month (30⁰/o).

Differential Meal Patterns

Table 1 illustrates the consumption of 23 food groupings from dietary data collected among the 526 families participating in this study, representing a total of 1,676 individuals.

As one examines the findings shown in the Table, the following comparison can be established between South Bronx and Puerto Rico: (a) the families in the South Bronx appear to exhibit a higher diversity or complexity in their food intake, as evidenced by the fact that of the 23 food groupings, 12 groupings were consumed by 50⁰/o or more of the sample. In contrast, on the Island only eight groupings were consumed by 50⁰/o or more of the families. Thus, it appears from the data that the migrant families in the South Bronx consume a more varied diet. (b) The last column of the Table also illustrates the percentage differences in food grouping intake (expressed in pluses or minus) for the two research settings. These data reveal that mothers in the South Bronx sample appear to consume higher intakes of 15 different food groupings, while in Puerto Rico, higher intakes were noted for the remaining eight food groupings. (c) Striking differential intakes (that is, higher intake in the order of 25⁰/o or more), appear to be present in the South Bronx data for the following groups: fresh fruits (51⁰/o), fruit juices (41⁰/o), leafy, raw and other vegetables (38⁰/o) white bread (38⁰/o) eggs (27⁰/o) and beef (26⁰/o). Conversely, two groups appear with higher intakes in the order of 25⁰/o or more for Puerto Rico, namely, sugar (38⁰/o) and soft drinks (27⁰/o). (d) Milk continues to be a favorite food among Puerto Ricans, thus making it the highest ranked food consumed among the 23 food grouping (100⁰/o in the South Bronx and 87⁰/o in Puerto Rico). Its preferred form of consumption appears to be in combination with coffee. The second ranked food consumed was leafy vegetables (93⁰/o) for the Bronx, and starchy vegetables and rice (81⁰/o each) for Puerto Rico.

The reported increased use of fresh fruits, juices and leafy raw vegetables by the South Bronx mothers is very encouraging. Conversely, the increased use of sugar and soft drinks by the Puerto Rican families sample is somewhat disturbing. Implications for nutrition education programs in the Island are self-evident.

Sample menus for the South Bronx and East Harlem collected during 1980 and 1972, respectively, are presented in Table 2. An attempt is made here to discuss these data, not only on the basis of the *changes* it has

TABLE 1
DIFFERENTIAL INTAKE OF 23 FOOD GROUPS CONSUMED IN SOUTH BRONX AND PUERTO RICO

Food grouping	(Based on a 24-hour recall method)					
	South Bronx		Puerto Rico		Per cent differences	
	(N)	o/o	(N)	o/o	South Bronx	Puerto Rico
Milk	200	100	283	87	+ 13	-
Leafy raw and other vegetables	186	93	178	55	+ 38	-
Coffee	179	90	247	76	+ 14	-
Fats and oils	175	88	217	67	+ 21	-
Breads (mostly white)	168	84	150	46	+ 38	-
Rice	158	79	265	81	-	+ 2
Fruit juices	144	72	101	31	+ 41	-
Starchy vegetables	135	68	265	81	-	+ 13
Fruits	134	67	51	16	+ 51	-
Legumes	131	66	192	59	+ 7	-
Eggs	118	59	103	32	+ 27	-
Beef	105	53	88	27	+ 26	-
Sugar	83	42	261	80	-	+ 38
Chicken	75	38	147	45	-	+ 7
Cheese	70	35	66	20	+ 15	-
Fish, tuna fish, codfish	61	31	78	24	+ 7	-
Cooked and dry cereal	52	26	52	16	+ 10	-
Canned fruits	39	20	4	1	+ 19	-
Cold cuts	39	20	97	31	-	+ 11
Pork	39	20	82	25	-	+ 5
Pasta	37	19	32	10	+ 9	-
Crackers	33	17	77	24	-	+ 7
Soft drinks	8	4	103	31	-	+ 27

TABLE 2
 CHANGES IN MEAL PATTERNS — EAST HARLEM (1972) AND
 SOUTH BRONX (1980)*

	<u>Soth Bronx (1980)</u>	<u>East Harlem (1972)</u>
Sample 1 ↑ Break fast: Lunch: Dinner: ↓ Before bed snack:	orange juice white bread boiled eggs coffee w/milk	orange juice unsalted crackers Gouda cheese coffee w/milk
	milk or juice sandwich fresh fruit	coffee w/milk serenata** vianda
	rice beans stewed or fried chicken lettuce and tomato salad	rice beans fried pork chop canned peas and carrots coffee w/milk
	milk cakes, cookies	none
Sample 2 ↑ Break fast: Lunch: Dinner: ↓ Before bed snack:	orange juice white bread oatmeal w/milk coffee w/milk	orange juice unsalted crackers Gouda cheese coffee w/milk
	sandwich lettuce and tomato salad coffee w/milk	fried eggs ripe plantain (plátano) canned vegetables & lettuce coffee w/milk
	a. rice beans "pernil" or "chuleta"● watercress, lettuce and tomato	a. rice Rosita (pink) beans beef stew lettuce and tomato salad w/ oil and vinegar
	b. rice beans steak w/onions or beef stew lettuce and tomato salad	b. rice w/pidgeon peas steak w/onions tostones●● coffee w/milk
Before bed snack	coffee w/milk crackers	none

* Recent food consumption data in Puerto Rico have been reported previously (4, 11, 15).

● Roasted pork, or pork chops.

●● Fried green plantain.

** A mixture of hard-boiled eggs, onions, tomatoes, codfish, vinegar and oil.

undergone in recent years, but also in terms of seeking to define *stability of cultural dietaries*, and *traditional foods* which are still maintained in these two neighborhoods in New York City.

Breakfast: Two major changes are observed on the breakfast menus of Sample 1. First, with respect to the substitution of unsalted soda crackers for white bread, and second, with respect to the use of boiled eggs instead of Gouda cheese. In Sample 2, oatmeal, prepared with milk, sometimes replaces the consumption of boiled eggs. The pattern of orange juice, and coffee with milk, appears to continue.

Lunch: Major changes have taken place in the lunch patterns. Firstly, the South Bronx is a light pattern in both sample menus, while in East Harlem is a heavy lunch, which includes traditional dishes, such as *serenata* (starchy vegetables with codfish), or ripe plantain with fried eggs. Notice the inclusion of fresh fruit juices in the 1980 menus. Interestingly enough, a marked preference for sandwiches (Big Mac, Quarter Pounder, frankfurters) bought at fast food chains, appear to be emerging in the new patterns.

Dinner: Traditional Puerto Rican foods still prevail among these families, as reflected by the consumption of rice and beans, and the preparation of the meat dish—in a Puerto Rican style (i.e., fried thin steak with onions). Although not so strong or adhered to as in the past, dinner has changed the least of the three meals. This finding is not entirely unexpected, since dinner is usually eaten at home, with most family members attending.

As in the 1972 data, rice and beans continue to be favorites among Puerto Ricans. Many varieties of beans were mentioned in our 1980 study, particularly red kidney beans in contrast to “rosita” (pink) beans reported for East Harlem. In addition to traditional preferences for lettuce and tomato salad, watercress was often mentioned as a favorite leafy vegetable in the South Bronx.

Before bed snack: Of the 200 women studied in Puerto Rico, only 114 (57%) reported any kind of snacking pattern. Of these, 58 (51%) informed fresh whole milk as their preferred beverage, while 56 (49%) chose coffee with milk. A minor percentage (31%) accompanied it with either cakes, cookies or Graham crackers.

Nutrient Intake

Using the frame work of the 1979 Recommended Dietary Allowances, Figure 1 shows the percentage of homemakers that consumed less than 34% of, between 34 and 66 and more than 66% of the RDA's established for the selected nutrients. Less than two-thirds is frequently used as a quantitative measurement for nutritional adequacy.

As the data reveal, in the South Bronx more than 50% of the mothers met more than two-thirds of the recommendations for all the nutrients: protein (100%), vitamin C (99%), riboflavin (99%), vitamin A (97%), calories (95%), calcium (93%) and iron (72%). In Puerto Rico the results were different: more than 50% of the families met more than two-thirds of the recommendation for protein (89%), riboflavin (78%) and calories (62%). There was almost an equal distribution between the percentage of the population that met less than two-

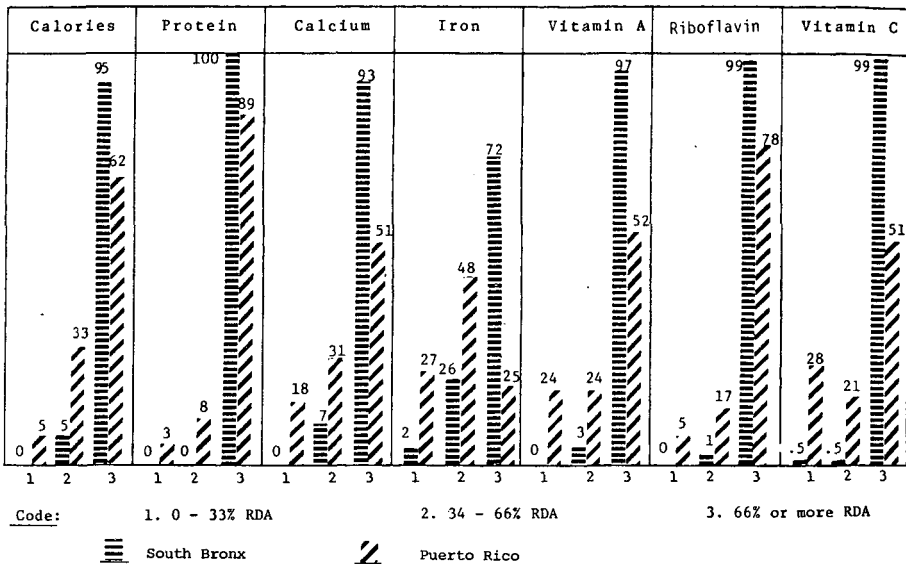


FIGURE 1

PER CENT OF ADEQUACY OF ENERGY AND NUTRIENT INTAKES OF WOMEN
IN SOUTH BRONX AND PUERTO RICO

thirds of the recommended allowance in relation to those that met more than two-thirds for the following nutrients: calcium (49 vs 51%), vitamin A (48 vs 52%) and vitamin C (49 vs 51%). Iron (75%) was the only nutrient that met less than two-thirds of the recommendation.

Providing additional support to the nutrient data shown in Figure 1, Table 3 presents the nutrient intake of mothers, illustrated with the minimum and maximum intake values for these nutrients. Standard deviations are shown (in parentheses) to provide the reader with pictures of the large variability of the nutrient intake among the mothers.

Dietary Changes

In this section, an attempt is made to assess the recent and past changes in dietary patterns of the homemakers and the reasons for such changes. Although data were collected for both groups, findings notified herein only refer to the 200 Puerto Rican women residing in the South Bronx.

All housewives in South Bronx interviewed reported changes in their diet during the last year previous to the interview, and also during the last five years. In both periods, the reasons for changes were primarily of personal and family nature, followed by health reasons. The types of changes in food items exhibited by homemakers were basically in two

TABLE 3

MATERNAL NUTRIENT INTAKE FOR SOUTH BRONX AND PUERTO RICO

Nutrient	Mean (\pm SD)	South Bronx Minimum Value	Maximum Value	Mean (\pm SD)	Puerto Rico Minimum Value	Maximum Value
Calories (Kcal)	1,985 (\pm 461)	892	3,055	1,588 (\pm 730)	258	6,914
Protein (g)	93 (\pm 25)	45	181	61 (\pm 31)	6	200
Calcium (mg)	931 (\pm 290)	308	2,165	592 (\pm 351)	14	2,618
Iron (mg)	16 (\pm 6)	4	38	9 (\pm 5)	0.2	35
Vitamin A (IU)	10,400 (\pm 14,127)	1,154	80,984	2,842 (\pm 4,189)	0.0	47,278
Riboflavin (mg)	2.6 (\pm 1.3)	0.7	8.0	1.4 (\pm 0.8)	0.1	5.4
Vitamin C (mg)	187 (\pm 86)	20	481	64 (\pm 66)	0.0	369

directions: either increased or decreased consumption of certain foods.

Table 4 shows specific changes which occurred during the last and past five years. In the case of last year, the most outstanding change was an increased consumption of vegetables in general (45^o/o), change which is supported as well by the consumption data collected among these homemakers in the South Bronx. Other foods mentioned with an increased consumption (in descending order), were fruits (34^o/o), three types of milk (23^o/o), fruit juices (23^o/o), "all foods in general" (10^o/o) and lastly, fish, eggs and cereal and whole wheat with 6, 5 and 5^o/o, respectively.

Decrease in consumption on the South Bronx families was reported for the following: fried food or fatty dishes (31^o/o), salt (21^o/o), "all foods in general" (8^o/o), and sugar, soda and "malts". Decreased consumption of bread and rice were also mentioned.

Direct quotations of reasons given by the mothers for their dietary changes are shown in Table 5.

Nutritional Status

Height and weight were the anthropometric measurements taken to assess nutritional status. Among the homemakers the prevalence of obesity appears to be the most serious nutritional problem. Thirty-five per cent of the women in the South Bronx weighed 20^o/o or more than their reference weight, based on height (Figure 2).³ Twenty-six per cent were moderately overweight, and 33^o/o had a normal body weight. A higher prevalence of obesity among women in Puerto Rico had been reported by our research team earlier (11). A number of years ago, Fernández and co-workers reported that 22^o/o of females aged 19-39 years, and 38^o/o of females aged 40-59 years, weighed 20^o/o or more than their reference weight. By comparison then, the sample of South Bronx homemakers showed a somewhat higher prevalence of obesity.

Data from the 1971 - 74 Health and Nutrition Examination Survey in the US revealed that 16.9^o/o of women comprised between the ages of 18 and 64 years, weighed more than 170 lb (17).⁴ A weight which exceeds 170 lb is taken as crude evidence of obesity. In the sample of South Bronx homemakers, only 9.5^o/o weighed more than 170 pounds. This would indicate a less than average prevalence of obesity among the South Bronx homemakers.

CONCLUSIONS

In light of the reported findings we can note, firstly, that in both South Bronx and Puerto Rico, the food intake of the families appears to

³ Body weights are unadjusted for pregnancy and lactation status.

⁴ The 1948-70 Ten-State Nutrition Survey found that among women in the age-group 21-60 years, 31^o/o were obese, using the triceps fatfold measurement of greater than 25.1 mm as a criterion to define obesity in women (14).

TABLE 4
 SPECIFIC DIETARY CHANGES DURING THE PAST YEAR
 AND LAST FIVE YEARS

Type of change	Last year		Past five years	
	Foods	o/o	Foods	o/o
Consumed less amount of:	Fried foods, fat, greasy foods, stop using lard	31	Salt	16
	Salt	21	Fried foods, fat grease	14
	"All foods"	8	Sugar and sweets	14
	Sugar	4	Do not buy any more sodas and maltas	11
	Stop buying sodas and maltas	4	"All foods"	4
	Bread	3		
	Rice	3		
Increased consumption of:	Vegetables	45	Vegetables	28
	Fruits	34	Fruits	23
	Powder milk, whole milk and skim milk	23	Whole milk, skim milk and powder milk	14
	Fruit juices	23	Fish	10
	"All foods"	10	"All foods"	6
	Fish	6	Eggs	3
	Eggs	5	Chicken and beef	3
	Cereal and whole wheat	5		

TABLE 5

MOTHERS' REASONING FOR THEIR DIETARY CHANGE IN SOUTH BRONX

- "I eat more fruits, more strawberries, apples and peaches, and I give more importance now to the green vegetables..."
- "Because of my health and my child's health, I have learned to do different dishes, now I eat carrots and spinach, and I use less fat in cooking..."
- "I eat more green vegetables now, like spinach, broccoli, and watercress..."
- "I drink skim milk now, I bake meats; I eat more vegetables and less starchy vegetables, because I need to lose weight..."
- "Before I did not use to have breakfast, but now I do, besides, now I eat more vegetables like cabbage, carrots and broccoli..."

- "Since I began participating in this program, I have learned to eat vegetables like spinach and carrots..."
- "I do not put salt in my food, I learned it in the Nutrition Program; now I eat more vegetables and fruits..."
- "I do not cook with lard anymore, I use the oven more often. Now in my family they are more aware of their diet..."
- "Now I do not fry food so much; rather I bake it, particularly the meat, because it is more healthy..."
- "I use the oven more often, I use less fat. I eat vegetables like spinach, sweet potatoes, carrots; I have learned in this Program to prepare them in different ways..."

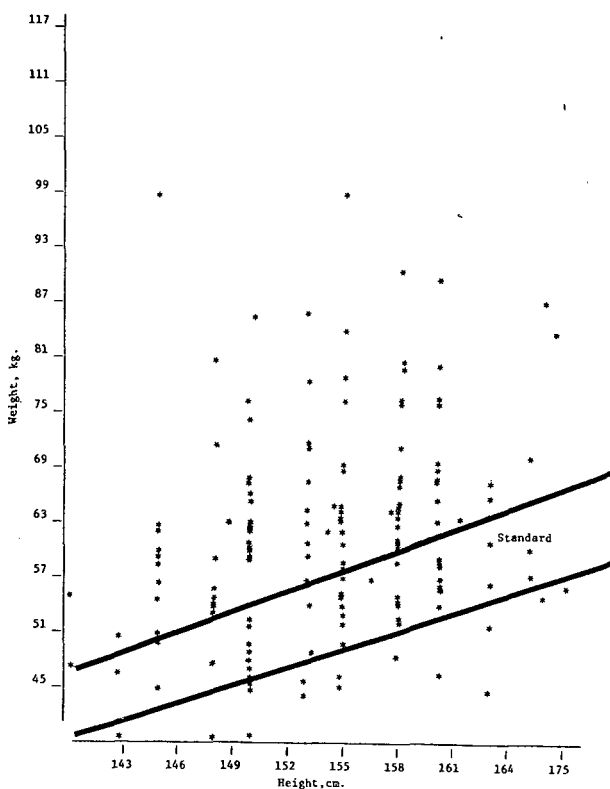


FIGURE 2

MEAN PERCENTAGE OF ADEQUACY OF WEIGHT FOR HEIGHT OF MOTHERS

(USING JELLIFFE'S STANDARDS)

S. BRONX - N = 200

adequate, as judged by the per cent adequacy of various nutrients (except for iron in Puerto Rico). In fact, the data suggest an overconsumption of certain foods, particularly within the protein group, in both the South Bronx and Puerto Rico, and of higher consumption of sugar and soft drinks in Puerto Rico.

The trends for the overall consumption of food observed in Puerto Rico and the South Bronx appear to be supported by the anthropometry data, which show a tendency for overweight, as well as obesity among the women studied.

With respect to the actual dietary changes, in general it can be readily appreciated that there is great awareness in the South Bronx women as to the need to change their food practices. The ongoing dietary changes alluded by the women, can be classified in two categories: a) those suggesting increased or decreased use of certain food items, and b) those suggesting modification of food preparation methods. Specifically, the data indicate that there is a tendency for increased consumption of fruits and vegetables, followed by a current decrease in the consumption of sweets, and carbonated beverages and "malts". There is also a trend for a decreased consumption of salt, as well as of fat and fatty foods. There is acute awareness among the women with respect to the need for shifting from "...frying on top of the stove..." to the use of the oven for baking or broiling, especially the meats, which they used to fry before. And lastly, if one were to identify potential influential factors fostering these dietary changes, in this sample, women's responses seem to suggest that "...through their participation in the Expanded Food and Nutrition Education Program (EFNEP), they became aware of these necessary modifications in their diet, to reduce weight and live a healthy life..." Additional factors, such as exposure to new and convenient foods, and their own children's food preferences also contributed to the exhibited dietary changes. The role of bilingual children in promoting dietary modifications (18) within societal groups in transition is beginning to be recognized as a powerful influence in the dietary acculturation process.

RESUMEN

TENDENCIAS Y DIFERENCIALES EN LOS PATRONES ALIMENTARIOS E INGESTA DE NUTRIENTES ENTRE FAMILIAS PUERTORRIQUEÑAS MIGRANTES

La presente investigación la motivó la preocupación por definir el estado nutricional de familias puertorriqueñas que migran hacia los Estados Unidos de América. Con esta finalidad, se estudió un total de 526 familias residentes en el Sur del Bronx, Nueva York, y cuatro comunidades en Puerto Rico.

Los resultados referentes a la ingesta de nutrientes sugieren que la dietas de las madres son bastante adecuadas, en el Sur del Bronx y en Puerto Rico, salvo en lo concerniente al consumo de hirro, en Puerto Rico. Más aún, los datos muestran una aparente tendencia al alto consumo de alimentos, particularmente de tipo proteínico en ambos lugares; revelan, asimismo, un alto consumo de azúcar y bebidas carbonatadas en Puerto Rico.

Estos datos dietarios fueron corroborados mediante antropometría nutricional,

confirmando cierta tendencia al sobrepeso y obesidad en las madres estudiadas.

Se informan en detalle cambios ocurridos en la dieta en el transcurso de los últimos cinco años. Los programas educativos como el de EFNEP, la disponibilidad de nuevos alimentos y la influencia de los niños en el hogar a través de sus propias preferencias, figuran como factores influyentes en la dinámica de cambios alimentarios de sociedades en transición.

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