

NUTRITION AND THE DEPRESSION
FINDINGS OF A MEDICAL EXAMINATION OF A GROUP OF NEW
YORK SCHOOL CHILDREN IN RELATION TO FAMILY INCOMES¹

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THE study by the United States Public Health Service and the Milbank Memorial Fund of the health of population groups which have been seriously affected by the depression included the physical examination of approximately one thousand school children from families on which economic and sickness data had been obtained. The examinations were conducted in order to supplement the sickness data in ascertaining whether or not changed economic conditions are related in any way to the nutrition and health of the school child. This paper is a preliminary report on the information relating to nutrition which was collected in the course of the examinations in New York City.

THE CHILDREN EXAMINED

Five hundred and fourteen children were examined in New York. They lived in the Bellevue district of Manhattan which includes the northern end of the well-known "lower East Side." According to the 1930 Census, about one-eighth of the 4,296 heads of families in this area were native white of native parentage and one-fifth native white of mixed parents. About one-third of the foreign-born heads of families were of Italian birth and the remainder came mainly from

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countries in central and southern Europe. The race stock of almost one-half of the children in the sample was Italian². The racial composition of the sample is quite similar to that of the entire population of the area.

Economically the area is a poor one. In 1930 the median rental in the district was \$20.33³ as compared with \$43.64 in all Manhattan and \$46.45 in Greater New York. Less than one per cent of the families in the district paid as much as \$50 rent per month as compared with more than 40 per cent of families in Manhattan and in Greater New York.

The physicians examining the children knew nothing of the economic background of any child examined. The data relating to income were collected independently in the general sickness survey and were correlated with the results of the physical examinations after the completion of both aspects of the study.

Incomes of the families represent not only wages but pensions, grants from relief organizations, borrowed funds and savings used for basic living expenses, and value of free rent given in return for services as janitor. It was clearly evident that the gross as well as the per capita⁴ incomes of the families whose children were examined were generally low. Nearly 60 per cent of the children, representing about half the total number of families, came from families in which the per capita income was less than \$4.00 per week in 1933. Only about one-fourth of the families represented had per capita incomes of \$6.00 a week or more.

²Families considered as Italian were generally those in which both husband and wife were Italian born or native born of Italian parentage. Very few cases of mixed race stock were found.

³That is, half of the families paid more than this rent and half less.

⁴See a preceding paper in this issue of the *Quarterly Bulletin* by G. St.J. Perrott and Selwyn D. Collins (Sickness and the Depression) for a description of the method of collecting income data and of computing family income per capita.

About one-third of the families (represented by about 40 per cent of the children examined) were receiving relief from organized agencies at the time of the enumerator's visit or during an extended period immediately preceding it. These families divide themselves into two categories because of differences in the two major types of relief represented. Those aided by the Home Relief Bureau received their allowance in the form of food tickets distributed on the basis of size and age-sex constituency of each household. Except in families in which one or more members of the household were wage-earners, this income was below \$2.00 per week per person and was of necessity spent entirely or almost entirely for food. In all other types of organized relief, money could be spent for items other than food. While on the whole, per capita incomes in this group were larger than those in the home relief group, the amount of money available for food was comparable or smaller.

PREVALENCE OF MALNUTRITION

The physician's estimate of nutrition, made immediately after completion of the physical examination, and here used as the measure of nutrition, was based on an appraisal of the child's general physical condition, with special emphasis on amount of subcutaneous fat present, texture of skin and hair, quality of muscle tone, and evidence of old rickets.

More than one-third of the 514 children examined were rated "poor" or "very poor" by the examining physicians, while only about one-fourth were rated "good" (Table 1). Any comparison of this finding with predepression nutrition ratings must be made with caution because of wide variation in nutrition standards. In 1923, Clark, Sydenstricker, and Collins reported on the results of careful physical examinations made by United States Public Health Service physi-

cians on a group of nearly 10,000 school children from various small towns and villages.⁵ A four-fold rating of nutrition similar to ours was used by these physicians. Of these 10,000 children, 83.3 per cent were rated "excellent" or "good" and 16.7 per cent "fair" or "poor." By combining the classes in Table 1 we may obtain a slightly different two-

Table 1. Nutrition ratings for a group of New York City school children from low income families, 1933.

Nutrition Rating	Number	Per Cent
Total	514	100.0
Good	126	24.5
Fair	209	40.7
Poor	150	29.2
Very poor	29	5.6

fold rating, as follows: "good" or "fair", 65.2 per cent; "poor" or "very poor", 34.8 per cent. The age groups in the two studies are parallel, but Clark, Sydenstricker, and Collins studied children representing cross-sections of entire communities and the nutrition ratings of these children, even in 1923, may have been higher than those of children taken exclusively from a city slum. Taking all differences into consideration, however, our sample appears to contain a relatively high percentage of malnourished children.⁶

⁵Clark, T., Sydenstricker, E., and Collins, S.D.: *Weight and Height as Index of Nutrition*. Washington, United States Public Health Service *Public Health Reports*, Reprint No. 809, 1924.

⁶The nutritional status of boys in this group appeared to be lower than that of girls as the following table shows:

NUTRITION RATING	MALES		FEMALES	
	Number	Per Cent	Number	Per Cent
Total	252	100.0	262	100.0
Good	41	16.3	85	32.4
Fair	110	43.7	99	37.8
Poor	79	31.3	71	27.1
Very Poor	22	8.7	7	2.7

This result appeared for each of the age groups 6-9, 10-11, and 12 or more years

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WEEKLY FAMILY INCOME PER CAPITA	NUMBER OF CHILDREN WITH SPECIFIED NUTRITION RATING					PER CENT WITH SPECIFIED RATING	
	Total	Good	Fair	Poor	Very Poor	Good	Poor and Very Poor
Under \$4.00	301	56	122	104	19	18.6	40.9
\$4.00-\$5.99	126	37	54	30	5	29.5	27.8
\$6.00 and over	87	33	33	16	5	37.9	24.1

Table 2. Nutrition ratings for a group of New York City school children classified according to family income in 1933.

NUTRITION AND FAMILY INCOME

An analysis of our sample according to family income gives us more direct evidence on the nutrition of children in families seriously affected by the depression. Practically all of the families in the highest income range were found to have been in the highest income range since 1929. They can therefore be presumed to represent, in a general way, the normal (or non-depression) expectation of malnutrition in a low-income city group.

A consistent direct association between nutritional status and family income was found (Table 2). More than 40 per cent of the children in the lowest income class (under \$4.00 per capita per week) were rated "poor" or "very poor" in nutrition while less than 25 per cent of the children in the highest income class (\$6.00 and over per capita per week) were so rated. Conversely, only 19 per cent of children from families in the lowest income class were rated as "good" in nutrition as against 38 per cent in the highest income class.

and persists in each of the comparisons from the point of view of economic status made later in this paper. We are unable to account for this sex difference at the present time.

The distributions according to sex and age in all of the groupings employed in this report were similar and from this point of view the groups may be regarded as comparable.

WEEKLY FAMILY INCOME PER CAPITA	NUMBER OF CHILDREN WITH SPECIFIED NUTRITION RATING					PER CENT WITH SPECIFIED RATING	
	Total	Good	Fair	Poor	Very Poor	Good	Poor and Very Poor
Less than \$4.00 in both years	247	41	102	88	16	16.6	42.1
\$4.00 or more in 1932 but less than \$4.00 in 1933	54	15	20	16	3	27.8	35.2
Less than \$4.00 in 1932 but \$4.00 or more in 1933	37	9	19	8	1	24.3	24.3
\$4.00 or more in both years	176	61	68	38	9	34.7	26.7

Table 3. Nutrition ratings for a group of New York City school children classified according to family incomes in 1932 and 1933.

The family incomes during 1932 have also been computed and it is possible to classify the families according to change in income between 1932 and 1933⁷. Since the small number of children examined precludes many classifications the following were made:

1. Less than \$4.00 in both years—the poorest class;
2. \$4.00 or more in 1932 but less than \$4.00 in 1933, a group which suffered a drop in income;
3. Less than \$4.00 in 1932 but more than \$4.00 in 1933, a group whose income increased somewhat;
4. More than \$4.00 in both years, presumably a class affected by poverty to a less extent than any of the other three.

As may be expected, the proportion with “poor” or worse nutrition was highest for children with weekly family incomes of less than \$4.00 per capita in both years and much lower for those with \$4.00 or more in both years (Table 3).

⁷The average weekly income for 1932 was computed on a basis slightly different from that for 1933. The income data obtained for 1932 covered the year as a whole whereas that for 1933 related to a single week, the week preceding the visit to the household.

On the other hand, a lowering of nutritional status appears to be associated with a drop in family income since the proportion of malnourished ("poor" and "very poor") children in families whose income was \$4.00 or more in 1932 but under \$4.00 in 1933 was greater than that in families whose incomes were \$4.00 or more in both years or rose to that level in 1933. As has been pointed out, the number of children examined is small, but the results are consistent in themselves and with the logic of the situation.

Since information was obtained as to the type of relief received in 1933, it is possible to make a comparison of the nutritional status of children from families receiving the two major types of relief, already referred to, and from families receiving no relief but classified according to income (Table 4). Here the most significant difference not heretofore demonstrated is in the comparison of the ratings of children from the home-relief group with those from families receiving comparable incomes either from other organized relief agencies or from sources other than relief. The highest ratings were given children from the home-relief group of whom nearly 23 per cent were rated "good" as compared with

Table 4. Nutrition ratings for a group of New York City school children classified according to type of family relief and income.

TYPE OF RELIEF AND WEEKLY FAMILY INCOME PER CAPITA IN 1933	NUMBER OF CHILDREN WITH SPECIFIED NUTRITION RATING					PER CENT WITH SPECIFIED RATING	
	Total	Good	Fair	Poor	Very Poor	Good	Poor and Very Poor
Work relief and miscellaneous	60	5	31	19	5	8.3	40.4
Home relief	145	33	58	44	10	22.8	37.2
Non-relief under \$4.00	111	21	44	42	4	18.9	41.4
Non-relief \$4.00-\$5.99	111	34	43	29	5	30.6	30.6
Non-relief \$6.00 and over	87	33	33	16	5	37.9	24.1

19 per cent from the poorest non-relief group, and about 8 per cent from the group receiving aid from social agencies other than the Home Relief Bureau.

Two-thirds of the children in the home-relief group came from families whose per capita weekly income was less than \$2.00; of the group classified as "Work Relief and Miscellaneous" only one-fourth came from homes in which the income was this low, while about one-fourteenth of the children from the comparable group receiving no relief came from homes in which the income was less than \$2.00 per person per week. The higher nutrition rating of children from the home-relief group in spite of these marked differences in distribution of income is of especial interest in view of the fact that food tickets issued to home-relief families have no cash value for anything except food, while families in the other two groups are free to spend portions of their income for items other than food. The diet survey indicates that families in the latter groups received a less adequate diet than did the families in the home-relief group⁸.

When the nutrition ratings of Italian children were compared with those of the remainder of the group, no significant differences were found.

SUMMARY

Without attempting to discuss their implications at this time, the indications afforded by the examinations of 514 New York school children in a poor area in 1933 as related to family income and relief may be summarized briefly:

1. Within this group of children there is a direct association between nutrition and income. Forty per cent of children from the lowest income groups were rated "poor" or "very poor," while only 25 per cent of the children from the higher income groups were so rated.

⁸Wiehl, Dorothy G.: *Diets of Low-Income Families in New York City*, p. 308.

2. A lowering of nutritional status appears to be associated with drop in family income in as short a time as a year.

3. In the lowest income group, children from families receiving aid from the Home Relief Bureau had somewhat higher nutrition ratings than those from families receiving other types of relief or having comparable incomes from sources other than relief. This is of especial interest in view of the fact that, although the per capita weekly income of families receiving home relief was lower than that in either of the other categories, the cash income given had to be spent for food.

4. The proportion of children suffering from malnutrition in the group examined appears to be considerably larger than the proportion of malnourished children we should expect to find in a non-depression era. While we have no records for other groups of children which are directly comparable with our data, the difference in the prevalence of malnutrition among children of low-income families as compared with that among children from the highest income families, in which there has been relatively little change in income since 1929, is definitely shown for the group included in this study.