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Use of Vitamin-Mineral Supplements by AFDC Children

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Synopsis

Slightly more than 11 percent of the 1,616 children in Northern Mississippi households receiving Aid to Families with Dependent Children regularly used vitamins, according to the 540 personal interviews conducted in this study. Of the vitamins used, about 20 percent were obtained by prescription. Participation in Early and Periodic Screening, Diagnosis and Treatment (EPSDT) was found not to be related to vitamin use.

The pharmacy was the main source of vitamins, which most frequently were those widely advertised on television. It is suggested that pharmacists, physicians, and EPSDT personnel might take a more active role in nutrition counseling.

The population is poor by definition and rural by study design. In the face of these facts, it was interesting to find that the most often used vitamin was Flintstones, one of the more expensive brands of children's vitamins. Some other vitamin products used, in descending order of frequency were One-A-Day vitamins, generic prenatal vitamins, and Neo-Vadrin with Iron. Data on shopping behavior and sources of products indicate that the population may not be making the best use of products or funds. Informal counseling by pharmacists at the point of sale has the potential to reduce these problems.

THE 1981 RELEASE by the U.S. Department of Health and Human Services of the four-volume report "Better Health for our Children: A National Strategy" (*1*) gave researchers, planners, and providers a wealth of information on which to judge the current status of child health and to chart a course for the future. Many pages of the Select Panel's report focus on nutrition, but we could find little recognition of the role or consumption of vitamins, even though millions of dollars are spent annually on such products.

Data were presented on nutrient intakes below 1980 recommended dietary allowances; average intake was expressed as a percentage of 1980 RDA, spring 1977 (*1a*). Deficiencies among those under 18 years of age are shown in table 1.

More relevant and better documented are the data from a study by Koh and Caples on nutrient intake of low-income, black families in southwestern Mississippi (*2a*). Using the 24-hour dietary recall method for 7 consecutive days, they found nutrient intakes approaching or above recommended

Table 1. Nutrient intake below recommended dietary allowances for Americans under 18

Nutrient deficiency	*Age groups*
Males and females:	
Calcium	3–5; 9–18
Iron	1–5; 12–18
Magnesium	3–18
Vitamin B6	3–18
Females only:	
Iron	9–11
Phosphorus	12–18

SOURCE: Reference 1a.

'There are deficiencies in vitamin intakes among children. It seems that such deficiencies are likely to be more pronounced in children in poverty-level families. Not so clear . . . is the degree to which possible vitamin deficiencies are perceived in such families, and the nature of any steps taken to correct them.'

levels for vitamin A, thiamine, riboflavin, and ascorbic acid. Sixty percent of the children in the study, however, had calcium intakes below two-thirds of the RDA. Substantial numbers of children also had diets inadequate in iron.

There are deficiencies in vitamin intakes among children. It seems that such deficiencies are likely to be more pronounced in children in poverty-level families. Not so clear, at least from the published literature, is the degree to which possible vitamin deficiencies are perceived in such families, and the nature of any steps taken to correct them.

In this paper we present data from a study conducted in a sample of more than 500 AFDC families in Mississippi concerning the vitamin-taking behavior by members of those families. The goal is to provide information about the types of such products used and to suggest whether they are appropriate. We also will suggest greater involvement by the pharmacist in the process.

Methods

The study population consisted of the 791 families, residing in two northern Mississippi counties, who had children enrolled in the AFDC program in January 1980. Names and addresses of those eligible were obtained from the Chancery Clerk offices of the two counties, where such information is a matter of public record. Recipients were then systematically assigned to 1 of the 12 months for which data were collected, so that one-twelfth of the interviews were conducted each month (February 1980–January 1981). During each month, households which lost AFDC eligibility were replaced by a random sample of households which had been added to the AFDC rolls since January 1980. This included 106 household replacements during the data collection period.

Data were collected on a household interview questionnaire. Trained personnel interviewed the head of the household (usually the mother) or other responsible adult living in the house. The respondents answered questions regarding demographics, their own attitudes, health status, and use of services, as well as questions concerning the health status and use of services by children living in the household. The results presented in this report are based on data analysis from the portions of the interview which focused on the use of vitamins by the AFDC children. Usable interviews were obtained from 540 (68.3 percent) of the households. (This figure represents two-thirds of the names on the rolls at any time during the survey period. Most omissions resulted from failure either to locate the home of the person or to find the person at home on repeated calls. The refusal rate was less than 5 percent. Because of restrictions of the welfare department, it was impossible to obtain data necessary for any comparison of respondents and nonrespondents.)

Results

There were a total of 181 instances of vitamin use by the 1,616 children in the sample. Of these, there were 39 instances (21.5 percent) of prescription drug use, and the remaining 142 (78.5 percent) were of nonprescription, over-the-counter drug use. These figures represent 12.6 percent of all prescription drugs and 35.5 percent of all nonprescription drugs used by the sample. Slightly less than 7 percent of all the children used one or more vitamins.

Table 2 provides a breakdown of the types of vitamins and supplements used. Two-thirds of all prescriptions were for iron therapy. Among the nonprescription drugs, Flintstone products (35 percent) and One-A-Day products (21 percent) together accounted for more than half of all vitamins used. (Both are products of the same manufacturer.)

Since vitamins represented less than 10 percent of all the drugs consumed in these households, an attempt was made to determine if vitamin users differed from the total sample on a variety of characteristics. Some of these are shown in table 3. These data indicate comparable rates of vitamin versus other drug uses when compared by sex and race. Smaller proportions of vitamin users received welfare payments, but a larger proportion reported asking pharmacists about nonprescription drugs.

We were interested in vitamin use as evidence of an orientation toward preventive health care. To explore that possibility, we compared the proportion of vitamin users who reported having had EPSDT screening of their children with the propor-

tion of nonvitamin users having such screening. EPSDT under Medicaid is free, but voluntary, being required in Mississippi before certain services (for example, dental surgery) can be covered by Medicaid.

As the following table shows, there was no significant relationship between vitamin use and the screening of children.

Number	*EPSDT*	*No EPSDT*
Take vitamins[1]	82	27
Don't take vitamins	979	497
Percent		
Take vitamins[1]	7.7	5.2
Don't take vitamins	92.3	94.8

[1] $\chi^2 = 3.63$, $df = 1$, $P = .05$

Another research interest was the role of the pharmacist in vitamin acquisition. The pharmacy was the source of half of the over-the-counter (OTC) vitamin purchases, followed by grocery stores, which accounted for 22 percent of the purchases. This proportion compares with the 28 percent who purchased *nonvitamin* OTC drugs from that source. We had expected that the widely advertised vitamin products might be purchased to a large extent from nonpharmacy outlets. This was not the case, as three-fourths of Flintstones vitamin products, the most widely used brand, were purchased in pharmacies.

Discussion

From the results of our study, it seems reasonable to suggest that some AFDC families at least are aware of or perceive inadequate nutrition and turn to multiple vitamins either (*a*) as one attempt to improve nutritional intake for which other remedies are not readily apparent, or (*b*) in the belief that daily vitamin consumption will replace adequate nutritional intake.

The Select Panel for the Promotion of Child Health, in expressing concern over nutritional content of certain packaged foods, noted that each year children watch approximately 20,000 television commercials for food products (*1b*). Further, other estimates are that children view approximately 1,000 television commercials for drug products annually (*3*). Similar estimates are not available for vitamin products, but more than 15 percent of the users in this study listed television as their source of information about the product. Significantly, 60 percent of the nonprescription vitamins used are

Table 2. Use of hematinics and vitamins by AFDC children in two northern Mississippi counties

Drug and drug class	*Number using*
Prescription	39
Hematinics	26
$FeSo_4$ generic	14
Fer-In-Sol	6
Feosol	5
"Iron" generic	1
Vitamins	13
Neo-Vadrin with Iron	6
Prenatal generic	5
Segran prenatal	1
Multivitamin generic	1
Nonprescription	142
Hematinics	8
$FeSo_4$ generic	4
Fer-In-Sol	2
FemIron	1
Sanapac Rooster	1
Vitamins	134
Flintstones	47
One-A-Day	20
One-A-Day with Iron	10
Multivitamin generic	9
Geritol	6
Neo-Vadrin with Iron	6
Pre-Natal generic	5
Chocks	5
Vitamin C generic	5
Flintstones with Iron	3
Fred's	3
National	3
Super Plenamins	2
Vitamin E generic	2
Vitamin B generic	1
Minuteman	1
Alfalfa-Shaklee	1
B-Complex-Shaklee	1
Vitaleq-Shaklee	1
Instant Protein-Shaklee	1
Optilets	1
Theragran M	1

Table 3. Selected characteristics of vitamin users, compared with users of all other drugs, in two northern Mississippi counties

Characteristics	*Percentage of vitamin users (N = 142)*	*Percentage of nonvitamin users (N = 1,474)*
Sex:		
Male	38.0	30.7
Female	62.0	69.3
Race:		
White	28.9	28.9
Black	71.1	71.1
Receive welfare payments[1]	19.7	[2] 39.9
Eligible for Medicaid only	75.4	69.4
Ask pharmacists about OTC drugs	30.8	[2] 20.5

[1] Some of the sample were eligible for Medicaid, but not welfare money payments. Others were eligible for both.
[2] Chi square significant at 0.05 level.

'If pharmacists . . . could be made better aware of specific nutritional deficiencies in their geographic areas, they would be better prepared to offer informed counsel. This assumes, of course, that the purchaser asks for advice.'

very visible television advertisers. Indeed, Flintstone and One-A-Day vitamin products accounted for more than 8 percent of all nonprescription drugs used by children in the study sample.

Among the suggested research topics of the Select Panel were projects assessing "the effects of advertisements, especially those on TV, on dietary habits" (*1c*). We would concur and suggest that vitamins be included for study.

Although considerable attention is given in the panel report to the manpower needs in nutrition education, we could find no mention of the community pharmacist. The pharmacist is clearly deeply involved in the use of nutrition products—at least in a distributive role and often as a primary source of advice on vitamin selection. Although suggestions were offered for "innovative use" of settings—including food markets, laundromats, and beauty salons—for nutrition education, no attention seems to have been drawn to the 50,000 community pharmacies which still supply the majority of vitamin products. Surely, these outlets constitute a potentially valuable setting as well.

It should be noted, however, that more than three-fourths of those using the highly advertised (and most expensive) vitamins purchased them in a pharmacy, whereas only one-third of those purchasing other nonprescription vitamins did so. We choose to view this result as an opportunity, and believe that efforts to bring the pharmacist, through educational training, into a vitamin counseling role offers the potential for better, more cost-effective vitamin therapy.

The Select Panel made this observation (*1d*):

> We urge that health care providers give specific consideration for their patients' nutrition-related needs as part of the full range of services offered, and that they organize their practice so that they are closely linked to nutrition services and professionals in their community in order to make appropriate referrals to meet their patients' needs.

It seems likely, at least from the Koh and Caple study (*2b*), that some (perhaps many) of those receiving multivitamin products in fact required more specific supplements. Further, less than one-fourth of the OTC products used contained iron, one of the diet supplements most likely to be deficient in the diets of this population. If pharmacists, through their own initiative or through contact with nutrition professionals in their area, could be made better aware of specific nutritional deficiencies in their geographic areas, they would be better prepared to offer informed counsel. This assumes, of course, that the purchaser asks for advice.

Pharmacists can also offer help in shopping. The suggested retail price for Flintstone vitamins at the time of the study was approximately 10 cents per tablet. Comparable generic products were available for about 4 cents per tablet—a savings of 60 percent.

Another possible source of advice on vitamin-mineral supplementation is the staff involved in EPSDT screening. Nearly one-third of the children in this study had contact with the EPSDT program, and guidelines issued in 1980 required that nutritional assessment be a routine part of the screening (*1e*).

There are few data to compare with our findings. In Bush and Rabin's study in the Baltimore area, 9.3 percent of the study population used prescribed vitamins, 7.5 percent used nonprescribed vitamins, and 0.1 percent used both. Vitamins were the second-ranking category of drugs used in both prescribed and nonprescribed classes (*4*). We found less than 2 percent using prescription supplements and about 7 percent using nonprescribed supplements, indicating at least the possibility that physicians, as well, might be encouraged to take a more active role in nutrition counseling.

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