Prevalence and predictors of children’s dietary supplement use: the 2007 National Health Interview Survey¹⁻⁴

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ABSTRACT
Background: Little is known about the characteristics of US children who are dietary supplement users.
Objective: We described the prevalence and predictors of and reasons for giving children dietary supplements.
Design: The study included children <18 y of age who participated in the Complementary and Alternative Medicine supplement of the National Health Interview Survey of 2007 whose proxies provided complete information on child dietary supplement use.
Results: A total of 37% of subjects used dietary supplements, 31% of subjects used multivitamin mineral (MVM) products exclusively, 4% of subjects used single vitamins or minerals solely or in combination with MVMs, and 2% of subjects used nonvitamin, nonmineral products either solely or in combination with other supplements. Users were more likely than nonusers to be Asian, white, or non-Hispanic; belong to families with higher parental education and income levels; reside in areas other than the South; be in good, very good, or excellent health; have private health insurance; and have a usual place at which they received conventional medical care. Children (3%) with the most disease burden and health care were more likely to use supplements than were healthier children. Supplements were given for the prevention or treatment of many illnesses and conditions. Neither the caregiver’s reasons nor specific supplements used were consistently associated with particular conditions.
Conclusions: The 37% of US children who used any type of dietary supplements differed from nonusers in family socioeconomic status and many other health-related characteristics. Users were given supplements to prevent or treat many illnesses and conditions for which there is only limited evidence of their efficacy. Am J Clin Nutr 2013;97:1331–7.

INTRODUCTION
Recent national surveys revealed that the prevalence of dietary supplement (DS) use has increased in adults and children over the past decade, and yet, relatively little is known about the characteristics of users (1, 2). The goals of this study were to compare and contrast the prevalence of DS use in children, predictors of use, and reasons why children are given these products. A previous analysis of the 2007 National Health Interview Survey (NHIS) described the use of complementary and alternative medicines (CAMs), including herbal medicines and other nonvitamin, nonmineral (NVNM) products by adults and children (3). This article expands on these observations by including vitamin and mineral supplements in the analyses in US children <18 y of age.

SUBJECTS AND METHODS
Data sources: NHIS of 2007
This article was based on data from the Child and Adult Complementary and Alternative Medicine supplements of the 2007 NHIS (4). The NHIS is a cross-sectional household interview survey of the US civilian, noninstitutionalized population. Since 1957, it has been conducted by the National Center for Health Statistics. Interviews were conducted in the homes of participants by using a computer-assisted personal interview, with telephone interviewing permitted for follow-up if necessary.
All adult members of the household who were home at the time of the interview were invited to participate and report. In the

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⁵Abbreviations used: CAM, complementary and alternative medicine; DS, dietary supplement; MVM, multivitamin-mineral; NHIS, National Health Interview Survey; NVNM, nonvitamin, nonmineral; SVM, single vitamin and mineral.

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family section of the survey, basic health and demographic information were collected on all household members. The Sample Adult Core collected information from one randomly selected adult aged ≥18 y (ie, the sample adult) and the Sample Child Core collected information about one randomly selected child aged 0–17 y (the sample child) in each household. The Adult and Child CAM supplements collected additional information about 36 types of CAM therapies commonly used in the US from the sample adult and sample child. Information on the sample adult was self-reported except in rare cases when the sample adult was physically or mentally incapable of responding, and information on the sample child was collected from an adult, usually a parent, who was knowledgeable about the child’s health. All NHIS survey procedures were approved by the Institutional Review Board of the National Center for Health Statistics.

Population surveyed

NHIS interviews were completed in 2007 of 29,266 households, with a household response rate of 87.1%. This rate yielded 75,764 persons from 29,915 families. This article was based on data from completed interviews with responding adults who served as proxies for the sample children aged from birth to 17 y. Of the sample children, 606 children were <1 y of age, and the vast majority of these children (n = 524) used no supplements. For the 9417 sample children whose proxies were interviewed, 9227 children had complete DS information and could be included in these analyses. The conditional response rate for sample children was 88.4%, and the final response rate was 76.5%.

NHIS core questionnaire

The NHIS core set of basic health and demographic questions has been generally consistent from year to year since 1997. Data products are publicly available (5). Core questions provide a rich assortment of data on respondent characteristics, including demographics (sex, age, race or ethnicity, parental marital status, and geographic region), socioeconomic status (education, family income level, and health insurance), health-related characteristics (including parent-reported child health status and number of selected health conditions), functional limitation (eg, needing help with personal care, getting around in the home, or routine needs, difficulty walking, limitation in the kind or amount of play or work, currently unable to work because of a health problem, difficulty remembering, limited in any other way, or receiving special education), and health care use (number of visits to the doctor in the past year, number of times conventional care was delayed for monetary or nonmonetary reasons, the place of conventional care, and hospitalizations in the past year).

CAM component

The NHIS CAM supplements included questions on the use of 45 different NVNM natural products and 20 different multivitamin-mineral (MVM) and single vitamin and mineral (SVM) supplements (5).

In the Child CAM supplement, the proxy respondent for the sample child was asked about the sample child’s use as follows: Has (sample child) taken a (supplement) listed on this card in the past 30 d? (response: yes, no, refused, or do not know). The adult reported which of the supplements the sample child took the most in the past 30 d and, for the 2 most-frequently used supplements, whether (yes or no) the supplement was used for a specific health problem or condition (see Appendix 1 under “Supplemental data” in the online issue). If the supplement had been used for a specific health problem or condition, the respondent was asked which one. Responses were coded from a list of 58 health conditions (eg, abdominal pain) that best represented conditions common to children and others that might be treated with CAMs as specified in the sample child file (see Appendix 2 under “Supplemental data” in the online issue). Analyses were restricted to the top 3 conditions given by respondents for ease of presentation.

NVNM natural products displayed on the card shown to the respondent consisted of DSs taken by mouth that contained a dietary ingredient other than vitamins and minerals to supplement the diet, including herbs or herbal medicines, other botanical products, and other dietary substances such as enzymes, glandular products, oils and fatty acids, fiber, prebiotics and probiotics, and others. Respondents identified NVNMs the child used and were asked to mention any others they used if a combination supplement was reported. The interviewer then asked about MVMs and SVMs by using a similar format as for the NVNMs (see Appendix 1 under “Supplemental data” in the online issue for a complete list of NVNMs, MVMs, and SVMs listed on the card). Interviewers recorded all information by using a computer-assisted personal interview.

Statistical analysis

For this article, subjects with DS data were categorized into the following 4 groups: 1) users of MVM supplements only (MVMs being defined as supplements that contained ≥2 vitamins and/or ≥2 minerals) and no use of NVNM, 2) users of SVM supplements who may or may not have used MVMs but who did not use NVNMs; 3) users of NVNM supplements such as herbs, botanicals, and other products who may or may not have used MVMs and/or SVMs, and 4) nonusers of all supplements.

Associations between DS use and child health status were also of interest. To identify children who were likely to be in poor health on the basis of their reported burden of illness and heavy use of the health care system, we constructed an ill-health score that ranged from 0 (absence of evident health problems) to 5 (poorest health) by using 5 indicators of health status from the interview. Each of the following indicators was rated as 1 (present) or 0 (absent): fair or poor health status (from the proxy’s report of the child’s health), any functional limitation for all activities on the summary measure, any limitation in the kind or amount of play or work, difficulty walking, limitation in the kind or amount of play or work, currently unable to work because of a health problem or condition (eg, abdominal pain) that best represented conditions common to children and others that might be treated with CAMs as specified in the sample child file (see Appendix 3 under “Supplemental data” in the online issue for definitions of limitations), serious health condition (eg, mental retardation (ever)), other developmental delay (ever) (eg, Down syndrome, cerebral palsy, muscular dystrophy, cystic fibrosis, sickle cell anemia, diabetes, arthritis, congenital heart disease, other heart condition, cancer, frequent diarrhea or colitis, and anemia), ≥4 doctor visits in the past year (as an indicator of sick compared with regular wellness or prevention visits and, thus, as a proxy for poor health status), and 1 or more hospital visits (with the exclusion of emergency room visits) within the past year (as an indicator of a serious underlying medical condition). The 5 items were summed to calculate the ill-health score, with the heaviest burden of illness and greatest use of health care indicated by the highest score.
Estimates for children were weighted by using the sample child recorded weight to represent the US civilian, noninstitutionalized population <18 y of age. Some analyses were also age-standardized to the 2000 Census population (6). The variance estimation method was Taylor series with replacement. All estimates and associated SEs shown in this article were generated with the SUDAAN software package (release 10.0; Research Triangle Institute), which was designed to account for a complex sample design such as that of the NHIS. Estimates with relative SEs >30% but ≤50% are identified with a double dagger (‡) throughout the manuscript, indicating that they were unreliable because of small sample size. Estimates with a relative SE >50% are indicated with a dagger (†) and are not shown. Significance testing was done by using the SUDAAN PROC DESCRIPT command with the PAIRWISE statement for comparisons of nominal categories and the POLYMIC statement to test for linear trends in ordinal variables. An α level of $P < 0.05$ was used for all significance testing.

RESULTS

As shown in Table 1, 37% of US children <18 y of age used DSs. Approximately 31% of children took only MVMs and no NVNMs, 4% of children took SVMs with or without MVMs but with no NVNMs, and 2% of children took NVNMs with or without other supplements. No sex differences were observed. Whites and Asians were more likely to be users of total DSs, MVMs, and SVMs than were blacks and the other group, and non-Hispanics were more likely to be users of total DSs than were Hispanics. Subjects living in the South were less likely to be users, and Westerners were more likely to use SVMs and NVNMs than were subjects in other regions of the country. Children from families with higher levels of parental education and/or family incomes and children with private health insurance were also more likely to use DSs (Table 1).

Associations between the prevalence of DS use and reports of the current health status of children are also shown in Table 1. Subjects who were reported to have a good, very good, or excellent health status were more likely to use DSs in total and MVMs than were subjects in poor or fair health. There were no associations between DS use and functional limitations or hospitalizations over the past year.

The use of any DSs and MVMs was higher in children who had a usual place at which they received conventional medical care. However, no associations were evident between use of any type of DS and whether or not there had been a delay in obtaining conventional medical care because of cost or other reasons.

Percentage distributions of all children, supplement users, and nonusers across the ill-health score index are shown in Table 2. Most children (60%) were healthy, with ill-health scores of 0. Approximately 37% of all children had ill-health scores of 1 or 2; whereas only 3% of all children had ill-health scores ≥3.

Percentage distribution of children with 0, 1, 2, and ≥3 ill-health scores across categories of supplement use are also shown in Table 2. For any DS use, child DS users were less likely than nonusers to have ill-health scores of 0 (which indicated the absence of evident health problems and only rarely seeing a doctor or being hospitalized) and more likely to have ill-health scores of 1. Users of MVMs and SVMs were also less likely to have ill-health scores of 0 and more likely to have ill-health scores ≥1 than were nonusers, although for higher illness scores, differences were NS. Types of DSs used did not vary by the ill-health score.

The number and age-adjusted prevalence of US children who were taking various types of supplements are shown in Table 3. The most popular supplements were MVMs. Of SVMs, those used the most were vitamin C; calcium; iron; B vitamins; vitamins D, E, and A; zinc; vitamin packs; magnesium; folic acid; and vitamin B-6. When NVNM products were grouped together into like categories, herbs and herbal medicines were used by 915,000 children (1.26%), which was more than twice as much use as in the next highest category of fish-oil, omega-3, and DHA supplements. Estimates for other NVNMs were imprecise because they were rarely used but were, in rank order, flax products, probiotics and prebiotics, other products, fiber or psyllium, and soy products.

Proxies reported that DSs were used to manage or treat a large number of health problems that ranged from minor illnesses (such as head or chest colds, sore throat, and constipation) to depression (data not shown). For example, for micronutrient supplements (MVMs and SVMs), the most popular uses were for anemia (percentage ± SE: 27 ± 4.7%), head or chest cold (25 ± 5.1%), a variety of other conditions (12 ± 2.8%), sore throat other than strep throat or tonsillitis (7 ± 2.7%), and other musculoskeletal conditions (6 ± 2.8%). The use of specific supplements was not associated with specific conditions, and for some supplements, no particular conditions were given as reasons for use.

In children who used NVNMs, the most commonly listed conditions for the use of NVNMs were a head or chest cold (31 ± 6.0%), another specific condition (11 ± 3.6%), insomnia or trouble sleeping (10 ± 3.6%), attention-deficit disorder or hyperactivity (10 ± 3.2%), and other allergies (7 ± 3.6%). No significant associations were evident between particular NVNM supplements and specific diseases or conditions.

DISCUSSION

To our knowledge, these data are unique because they provide detailed information on the role of household characteristics, child health status, and health care patterns on children’s use of DSs in a large, nationally representative sample. We showed that, except for multivitamins, DS use in children was minimal. In the 37% of US children <18 y of age in the NHIS who used supplements, the vast majority (≥84%) used MVMs, with only 11% of them who used SVMs, and 6% of them who used NVNMs, which confirmed results of other recent population-based surveys (1, 3, 7–12). Although information on dosages used was not obtained in this study, in other studies in children <5 y of age, the use of MVMs and SVMs was generally at safe levels (13). Children who used supplements differed from nonusers in many characteristics that may have influenced or been affected by their health status, including family socioeconomic status, health care arrangements, and use of medical care. Other studies have shown that users of micronutrient supplements often have better nutrient intakes (14–16), healthier lifestyles, and a lesser prevalence of overweight or obesity than did nonusers (17) (3, 18). We confirmed earlier reports that the use of all types of DSs was associated with race, ethnicity, region, parental income, education, and other characteristics of the family’s health care (14, 16).

In addition to the many children who were reported to be in good or excellent health, we identified a much smaller group of

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### TABLE 1

Prevalence of dietary supplement use in the past month by selected characteristics in US children <18 y old from the NHIS 2007

(Continued)

#### Characteristics

**Study sample (n)**

- 2661
- 330
- 170
- 3161
- 6066

#### Sociodemographic characteristics

**Age (y)**

- 0–4: 30.3 ± 1.15
- 5–11: 38.9 ± 1.2
- 12–17: 23.5 ± 1.0

**Sex**

- M: 30.8 ± 0.9
- F: 31.8 ± 1.0

**Race**

- White: 32.7 ± 0.7
- Black: 25.9 ± 1.2
- Asian: 32.9 ± 2.9
- Other: 18.7 ± 3.4

**Ethnicity**

- Hispanic: 22.3 ± 1.0
- Non-Hispanic: 33.7 ± 0.8

**Region**

- Northeast: 36.8 ± 1.9
- Midwest: 33.7 ± 1.4
- South: 29.1 ± 0.9
- West: 28.2 ± 1.2

**Parent education**

- Less than high school: 15.6 ± 1.2
- High school graduate or GED: 23.5 ± 1.2
- Some college or no degree: 31.5 ± 1.4
- Associate of arts degree: 37.5 ± 1.9
- Bachelor of arts or science degree: 38.0 ± 1.5
- Masters, doctorate, or professional degree: 44.6 ± 1.8

**Family income (imputed)**

- <$20,000: 19.2 ± 1.17
- $20,000–$34,999: 24.8 ± 1.5
- $35,000–$54,999: 28.4 ± 1.5
- $55,000–$74,999: 32.6 ± 1.8
- ≥$75,000: 40.9 ± 1.2

**Health insurance**

- Private: 37.1 ± 0.9
- Public: 23.5 ± 1.0
- Uninsured: 20.8 ± 1.6

**Health status**

- Poor: 18.0 ± 3.7
- Good: 31.5 ± 0.7

**Number of health conditions**

- None: 24.0 ± 1.9
- 1–2: 31.5 ± 1.8
- 3–5: 41.0 ± 1.8
- ≥6: 39.9 ± 2.0

**Number of doctor visits in past 12 mo**

- 0: 17.3 ± 1.2
- 1: 29.6 ± 1.2
- 2–3: 33.2 ± 1.1
- 4–9: 35.5 ± 1.5
- ≥10: 36.7 ± 2.6

#### Total supplement use

- Only SVM use, no NVNM: 2661
- SVM with or without MVM: 330
- Any NVNM with or without SVM and/or MVM: 170
- Total supplement use: 3161
- None: 6066

#### None

- 2661
- 330
- 170
- 3161
- 6066

(Continued)
TABLE 2

Prevalence of dietary supplement use in the past month by ill-health score in US children <18 y from the NHIS 2007 (age adjusted and standardized)^7

<table>
<thead>
<tr>
<th>Ill-health score</th>
<th>Sample size</th>
<th>All children</th>
<th>Supplement users (n = 3128)</th>
<th>Nonusers (n = 5993)</th>
<th>Total</th>
<th>Only MVM use</th>
<th>SVM with or without MVM use</th>
<th>Any NVNM with or without SVM and/or MVM use</th>
<th>Total supplement use</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5504</td>
<td>60.2 ± 0.7^7</td>
<td>56.4 ± 1.1</td>
<td>62.4 ± 0.8</td>
<td>100.0</td>
<td>10.00</td>
<td>3.3 ± 0.3</td>
<td>1.6 ± 0.3</td>
<td>64.9 ± 0.9</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2584</td>
<td>28.7 ± 0.6</td>
<td>32.1 ± 1.0</td>
<td>26.6 ± 0.7</td>
<td>100.0</td>
<td>35.1 ± 1.3</td>
<td>4.2 ± 0.5</td>
<td>2.7 ± 0.4^4</td>
<td>58.0 ± 1.4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>787</td>
<td>8.4 ± 0.4</td>
<td>8.6 ± 0.6</td>
<td>8.2 ± 0.5</td>
<td>100.0</td>
<td>30.8 ± 2.4</td>
<td>6.6 ± 1.2</td>
<td>3.2 ± 0.9</td>
<td>59.3 ± 2.5</td>
<td></td>
</tr>
<tr>
<td>≥3</td>
<td>256</td>
<td>2.8 ± 0.7</td>
<td>2.9 ± 0.4</td>
<td>2.7 ± 0.2</td>
<td>100.0</td>
<td>29.3 ± 3.3</td>
<td>5.2 ± 1.5</td>
<td>3.8 ± 1.3</td>
<td>61.8 ± 3.5</td>
<td></td>
</tr>
</tbody>
</table>

^7 Age adjusted by using the projected 2000 US population as the standard population with the use of the following age groups: 0–4, 5–11, and 12–17 y.

^4 The ill-health score was a summed score that ranged from 0 to 5 with 1 point given for each of the following: fair or poor health (from a self-reported health-status variable), a functional limitation, a serious health condition, ≥4 doctor visits in the past year, and ≥1 hospital visit in the past year. Estimates with a relative SE >30% but ≤50% were unstable because of the small sample size. MVM, multivitamin-mineral; NHIS, National Health Interview Survey; NVNM, nonvitamin, nonmineral; SVM, single vitamin and mineral.

^5 Percentage ± SE (all such values).
because of missing data, used NVNM supplements in 2007. Some of these children may be at risk because little is known about the possible adverse effects of NVNMs on child health. The safety of most NVNM supplements has not been studied and the National Center for Complementary and Alternative Medicine (33).

The reasons why so many children and adults use DSs for many conditions are unclear (8, 9, 34, 35). We showed that children were given supplements to prevent nutrient deficiencies (eg, vitamin D deficiency) and manage or treat the entire range of health conditions queried in the NHIS, which perhaps reflected the extensive mar-

TABLE 3

<table>
<thead>
<tr>
<th>Types of supplements</th>
<th>No. in thousands</th>
<th>Percentage ± SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVMs</td>
<td>24,899</td>
<td>34.71 ± 0.69</td>
</tr>
<tr>
<td>SVMs</td>
<td>149,169</td>
<td>65.30 ± 0.63</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>1749</td>
<td>2.44 ± 0.21</td>
</tr>
<tr>
<td>Calcium</td>
<td>777</td>
<td>1.08 ± 0.13</td>
</tr>
<tr>
<td>Iron</td>
<td>508</td>
<td>0.70 ± 0.11</td>
</tr>
<tr>
<td>Vitamin B combinations</td>
<td>286</td>
<td>0.40 ± 0.07</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>175</td>
<td>0.24 ± 0.06</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>140</td>
<td>0.19 ± 0.05</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>135</td>
<td>0.19 ± 0.05</td>
</tr>
<tr>
<td>Vitamin B-12</td>
<td>105</td>
<td>0.15 ± 0.04</td>
</tr>
<tr>
<td>Zinc</td>
<td>99</td>
<td>0.14 ± 0.06†</td>
</tr>
<tr>
<td>Vitamin packet</td>
<td>93</td>
<td>0.13 ± 0.04†</td>
</tr>
<tr>
<td>Magnesium</td>
<td>74</td>
<td>0.11 ± 0.04†</td>
</tr>
<tr>
<td>Folic acid/folate</td>
<td>74</td>
<td>0.10 ± 0.03†</td>
</tr>
<tr>
<td>Vitamin B-6</td>
<td>59</td>
<td>0.08 ± 0.04†</td>
</tr>
<tr>
<td>NVNMs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herbs and herbal medicines</td>
<td>915</td>
<td>1.26 ± 0.18</td>
</tr>
<tr>
<td>Fish oil, omega-3, and DHA</td>
<td>441</td>
<td>0.61 ± 0.14</td>
</tr>
<tr>
<td>Flax products</td>
<td>233</td>
<td>0.32 ± 0.12†</td>
</tr>
<tr>
<td>Prebiotics and probiotics</td>
<td>199</td>
<td>0.27 ± 0.12†</td>
</tr>
<tr>
<td>Other products†</td>
<td>164</td>
<td>0.22 ± 0.05</td>
</tr>
<tr>
<td>Fiber or psyllium</td>
<td>35</td>
<td>0.05 ± 0.02†</td>
</tr>
<tr>
<td>Soy products†</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

† Standardized to the 2000 Census. Estimates with a relative SE >30% but ≤50% were unstable because of the small sample size; estimates with a relative SE >50% are not shown because of the instability of estimates. MVM, multivitamin-mineral; NVNM, nonvitamin, nonmineral; SVM, single vitamin and mineral.

Among the strengths of this study was the large, welldocumented, and representative sample that permitted extrapolation to the US population with more-detailed information on reasons for giving children supplements than has previously been available in national surveys. A major limitation of the study was that data on supplement dosages used were not available to assess safety concerns. Also, total micronutrient intakes of children were unavailable, and thus, it was not possible to comment on the adequacy of micronutrient intakes in users and nonusers. Finally, information on DS use in children was obtained from proxies. Dietary supplement use in children might have been higher than our results indicated, especially in adolescents who may not have revealed their supplement use to parents or other adults in the household. For example, in a small study, Wilson et al (37) reported that 29% of children aged 14–19 y used an NVNM in 2002. This report contrasts with the current report that 2.9% of children aged 12–17 y used an NVNM. In a survey of North Carolina adults with children <18 y of age, 5% of adults reported that they gave their children medicinal herbs (38). Although much of the discrepancy undoubtedly reflects other differences in survey methodologies and, perhaps, real trends over time, we cannot discount the effect of a direct report of supplement use compared with that collected through a proxy or that some groups, such as newly landed immigrant families or others, might have a much higher use of NVNMs. It is important to explore such possibilities in more-focused studies. The list of health conditions queried (see Appendix 2 under “Supplemental data” in the online issue) included conditions of very different severities, which may have affected the bivariate results and results for ill-health scores.

In conclusion, 37% of child users usually take MVMs and use SVMs and NVNMs infrequently. Children are given supplements for many indications, especially for the prevention and treatment of many illnesses for which little credible evidence exists that the supplements are efficacious. The reasons given for supplement use are not highly supplement specific. Use of supplements in children <18 y of age in the United States is common and associated with family characteristics such as socioeconomic status, race, ethnicity, place of residence, and health care patterns. To our knowledge, this article is among the first to use nationally representative data to identify a small subset of DS users who had a high disease burden, which fits the traditional characteristics of users.

In conclusion, 37% of child users usually take MVMs and use SVMs and NVNMs infrequently. Children are given supplements for many indications, especially for the prevention and treatment of many illnesses for which little credible evidence exists that the supplements are efficacious. The reasons given for supplement use are not highly supplement specific. Use of supplements in children <18 y of age in the United States is common and associated with family characteristics such as socioeconomic status, race, ethnicity, place of residence, and health care patterns. To our knowledge, this article is among the first to use nationally representative data to identify a small subset of DS users who had a high disease burden, which fits the traditional characteristics of users.

[Note: The provided text appears to be a section from a scientific or academic source, discussing dietary supplement use in children, with references to other studies and data. The text includes tables and statistical analysis, discussing the prevalence of supplement use and the reasons for it.]
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The authors’ responsibilities were as follows—JD, RLN, PMJ, and CTS: conception and design of the study; RLN, PMB, and GTR: data acquisition; JD, PMJ, GTR, RLN, RB, and CTS: drafting of the manuscript or critical revision of the manuscript for important intellectual content; and all authors: analysis and interpretation of data and approval of the final version of the manuscript. None of the authors had a conflict of interest.

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