Author's response to reviews

Title: Factors and common conditions associated with adolescent dietary supplement use: an analysis of National Health and Nutrition Examination

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Author's response to reviews: see over
Dec. 24, 2007

Dear Dr. Parkin,

Thank you for considering our paper “Factors and common conditions associated with adolescent dietary supplement use; an analysis of National Health and Nutrition Examination”. In this paper, we examine the relationship between dietary supplement use and adolescents.

We appreciate the comments from the reviewers and have addressed the points below:

**Reviewer 1 Sunita Vohra:**

Comment 1 – We thank the reviewer for this suggestion. In our methods, we addressed her suggestion of the Bonferroni correction. (page 6 paragraph 2)

“Due to multiple comparisons, statistical significance was set at a p value of .005 (Bonferroni correction)”

Comment 2 – The reviewer recommended adding p values to the text. In paragraph 3, page 7, we added P values to the text were there were significant results between two variables. In the multivariable regression, we added p values and odds ratios for clarification in the text on pages 7 and 8.
Comment 3 – We added the reviewer’s suggestion to the sentence on page 9.

“Differences in rates might be due to different usage in different groups, differences in the time period of use, and by different survey methods such as self report using the Internet vs. parent or adolescent response in a face to face interview.”

**Reviewer 2 Dr. Toverud:**

Comment 1 – The reviewer suggested that we emphasis the role of the pharmacist and physicians. We revised a sentence in the discussion on page 10 to strengthen this concept.

“Given reports about clinically serious interactions between prescription drugs and herbals/supplements, physicians and pharmacists need to be mindful of the higher use of DS among prescription users, ask prescription medication users about their use of DS, and monitor them for adverse effects or interactions.”

We added a sentence to our conclusion which addresses this on page 11.

“Therefore, physicians and pharmacists should regularly ask patients about DS use, and check for potential interactions.”

Comment 2 – The reviewer noted that it would be interesting to know the total number of questions and time necessary to complete the interviewers. This information is not available to us as each subject answered a different set of questions based on their responses to other questions. Additionally, NHANES did not ask participants about “bad diet”.

The Methods have been changed to include the subheading - Statistical Analysis. (Page 5)
Informal Comments:

Background

Comment 1 – We revised the sentenced to clarify that the data was taken from survey data.

(page 3 paragraph 1)

“In small clinical surveys, pediatric chronic conditions for which herbal therapies and dietary supplements were reported include: attention deficit hyperactivity disorder (ADHD), asthma, atopic dermatitis, allergic rhinitis, cancer, inflammatory bowel disease, headache, and cystic fibrosis [3, 10-18].”

Comment 2 – We corrected reference 19.

Comment 3- We revised this sentence on page 3 to take into account self-reported data.

(page 3 paragraph 2)

“However, these analyses did not explore self-reported clinical or health conditions associated with teens’ use of DS. [20, 21]”

Comment 4 – We revised this sentence and added references.

“However, these analyses did not explore self reported clinical or health conditions associated with teens’ use of DS. [20, 21]”

Methods

Comment 1 - We thank the reviewer for this comment.
Comment 2 – We reviewed the paragraph noted by the reviewer and revised the paragraph as follows (page 5).

“Finally, to address the question as to whether adolescents with common out-patient conditions use more dietary supplements, we extracted data on chronic non-life threatening conditions frequently seen in out-patient practices asked during the NHANES interview. Questions were asked about asthma, being overweight, and ADHD with the phrasing, “Has the doctor or other health professional ever told you that (you/he/she has) X ? The conditions “hay fever in past year” and “frequent severe headaches in past year” were based on self report, not physician diagnosis. “

Comment 3 – We added several sentences to clarify our categorization of the supplements on page 6.

“We grouped the DS by category into vitamins/minerals or non-vitamins/minerals. Vitamins/minerals included: 1) any multivitamins/minerals (multivitamin/minerals or prenatal multivitamin); 2) any single vitamins or minerals. For non-vitamin/mineral DS use we included the following categories: 1) herbal products (e.g. echinacea, garlic); 2) non-herbal DS (e.g. probiotics, fish oil); and 3) appearance or performance enhancing supplements (e.g. protein powders or creatine). Some non-vitamin/mineral DS included vitamins as minor ingredients. In our efforts to capture the intended DS use by subjects, we used product labeling information and advertising materials to determine the category assignments.”
Comment 4 – The variable income was removed from the model due to co-linearity with the variable race/ethnicity (Standard error for race/ethnicity increased by more than 25% when we added income to the model). Additionally, our original hypothesis questioned the association with race/ethnicity and dietary supplement use. Therefore, we keep race/ethnicity in the final model. When we added income into the final model with race there was negligible change in the point estimates for the race/ethnicity variable. We revised the methods section on page 6 paragraph 2 to reflect this comment.

Comment 5 – We deleted this category from table 3.

Comment 6 – We reviewed this comment and feel our sample size in each of our race/ethnicity categories is adequate for the analyses conducted; our race/ethnicity group has the following N: 1375 non Hispanic whites, 1575 Non-Hispanic Blacks, 1956 Mexican Americans, 400 Non-Hispanic others.

Comment 7 – We thank the reviewer for this comment. We noted the statistical methods in the footnotes of the tables as indicated. The statistical methods are also discussed in the methods section of our paper.

**Results**

Comment 1 – The sample size has been added to the tables as requested.

Comment 2 - We rewrote the results section to address the reviewer’s comments (page 7)
“Overall, 27% of youth reported using one or more DS in the month prior to the survey (Table 2). Non-vitamin/mineral DS were used by fewer than 5% of youth. Older teens used more prenatal vitamins ($p=0.003$) and iron ($p=0.004$) than younger teens (Table 2).

Frequency of use was increased in those with higher income. Non-Hispanic white youth used DS more commonly than minority youth. (Table 3) DS use was highest among those reporting very good or excellent health and lowest among those with poor or fair health. Conversely, DS was higher among those who reported using prescription medications than those who did not. DS use was slightly lower in youth diagnosed with asthma or overweight and higher among youth with ADHD, hay fever, or headache. (Table 3)”

In Comment 4, we mentioned why income was removed from the final variable.

**Discussion**

Comment 1 – To address the reviewers comments about the discussion we revised the first paragraph of the discussion. We simplified the comments about multivitamins and vitamin C (adding %). We removed the reference to other articles in the third sentence.

“This study describes the relationship between several varieties of DS use and clinical and socio-demographic factors in a nationally representative sample of American adolescents. Overall, 27% of adolescents reported using a DS in the last month. DS use was higher among non-Hispanic whites, those who reported better health status, and those who used prescription medications. However, we did not find the expected association between DS use and gender, nor after controlling for other factors, between
DS use and any specific health condition other than headache. The findings that the most commonly used DS by teens were multivitamins (16%) and vitamin C (6%) is reassuring in terms of potential health risks. The higher use of non-vitamin/mineral supplements among obese teens raises questions about the types and safety of the specific DS used in this growing population.”

Comment 2- We have reviewed the comment and reassessed the references. We thank the reviewer for the comment and the paragraph now reads:

“The prevalence of DS use in our sample was consistent with that found in other large studies that used different sampling techniques [4, 19, 26]. The use of some non-vitamin/mineral supplements (e.g. sport and herbal performance enhancers) in this sample was lower than in studies of teen athletes [27-32]. It was also lower than rates reported in clinically based surveys [3, 11, 12, 14, 33]

Methods

Comments 1 – This is revised. (page 4, paragraph 1) “NHANES has been conducted as a two year data collection with data released for public use in two-year increments.”

Comment 2 – We clarified the term tea by changing it to medicinal herbal tea (page 5 paragraph 1)
Comments 3 – This is revised. We noted that those variables are answered by the head of the household (page 5 paragraph 2) “Age, sex, race/ethnicity, total family income, physical activity, and health status were generally obtained from the head of household.”

Comment 4 – This is revised by removing the reference to proxies. (page 5, paragraph 2) “We dichotomized the age variable into two age groups 11-15 years old versus 16-19 years”

Comment 5 - This is clarified now in the text. We changed it to one question. (page 5, paragraph 3) “Questions were asked about asthma, being overweight, and ADHD with the phrasing, “Has the doctor or other health professional ever told you that (you/he/she has) X ?”

Comment 6 - This is clarified now in the table. We removed the word other.

Thank you for considering our submission.

Sincerely,

Paula Gardiner MD