INTRODUCTION:

Dietary/herbal supplement use has increased in the past twenty years, especially among college students. In fact, Newberry et al found that of the respondents to their questionnaire (n=272), 48.5% of Washington State University college students took dietary/herbal supplements in the past twelve months (1). Similar results have been reported with usage at 28.6% and 37% of reported supplement use (2,3). With a large bank of supplements to choose from (approximately 29,000 in 1995 (4)), it is no surprise that the American public spends an estimated 3.5 billion on these products annually (5). In the Journal of the American Dietetic Association, Connie Vickery and Nancy Cotunga state that the use of dietary/herbal supplements rose over 50% between 1997 and 2002 (6).

Of particular interest among users of dietary/herbal supplements are the freshmen and sophomore populations. Research has shown that this group is among the least studied for usage, but is one of the most easily influenced by media. The experience of autonomy and concern of body image leaves these young adults vulnerable to advertisements on “healthy” and “natural” ways to lose weight, build muscle, etc. The perceptions of whether or not ingested dietary/herbal supplements work have been studied and some have reported continued usage even when negative side effects were experienced. Further, the reasons for taking supplements vary among this age group from friends, family, and advertisements in magazines and newspapers. Health professionals were among the least stated resources of recommending use of dietary/herbal supplements. With unknown effects of possible interactions of nutrients or
medications, it is important to educate freshmen and sophomore college students on intended use and possible side effects of dietary/herbal supplements to aid in better decision making. With this in mind, more research is needed to assess the usage, perceptions, beliefs and knowledge of herbal/dietary supplements in young college students.

This study was conducted with the intent of answering the following questions:

1) What is the prevalence of use of dietary/herbal supplements among college students, specifically among freshmen and sophomore health (School of Allied Medical Professions) and non-health majors (Fisher College of Business)?

2) What are the perceptions, beliefs/knowledge of freshmen and sophomore health related pre-majors in the OSU- School of Allied Medical Professions (SAMP) when compared to those of non-health majors in the OSU Fisher College of Business (FCOB)?

3) What are the sources of dietary/herbal supplement information among the freshmen and sophomore populations in the OSU-School of Allied Medical Professions when compared to those of the Fisher College of Business?

**METHODS:**

The study was approved with exempt status by the Institutional Review Board (IRB) at The Ohio State University. A collaboration was established with Dr. Jay Yutzey from the Fisher College of Business (yutzey.2@osu.edu) and Erica Lee, the Director of Student Affairs from the School of Allied Medical Professions (lee.989@osu.edu).

A recruitment letter was prepared by the research team describing the purpose of the survey and the incentives for participation, with emphasis placed on the fact that participation was voluntary and anonymous. Students then had the option of opening and
completing the survey or not completing the survey without having either counselor or researcher knowing; thus anonymity was guaranteed. No personal information or identifiers were collected and the students had the option of exiting the survey at any time. The survey first included an online consent form that had to be completed in order to continue. The survey took approximately ten to fifteen minutes to complete and upon completion provided the option to be entered into a random drawing to win one of four gift cards to Buffalo Wild Wings. However, they had to choose whether or not they would like to eligible to win and were not in any way linked to the survey.

A licensed copy of Survey Monkey was required and provided by the Division of Medical Dietetics. The survey was sent with an embedded link to surveymonkey.com via e-mail to the School of Allied Medical Professions and The Fisher College of Business respective contacts. Dr. Jay Yutzey and Erica Lee then distributed the survey via e-mail to their corresponding students (1,836 and >700 pre-majors, respectively). The survey started on January 14th 2008 and ended February 21st 2008. This enabled participating students to complete the survey at their own convenience over a five week time period. A survey packet is included in the appendix and includes the recruitment letter, the informed consent sheet, and the survey itself.

Data was collected online and then downloaded to Microsoft Excel spreadsheet. This was used to tabulate the data from the completed surveys, which was then imported into SPSS for cleaning and analysis. A t-test was used for the continuous variables (e.g. quantity of supplement used, source of dietary/herbal supplement information, etc) and chi square comparisons were used for categorical variables (e.g. were supplements ever
used—yes or no…). A p value less than or equal to 0.05 was considered statistically significant.

**RESULTS:**

1) **What is the prevalence of use of dietary/herbal supplements among college students, specifically among freshmen and sophomore health and non-health majors?**

Initially, 390 participants started the survey. Of those, 335 completed the survey. Of the 335 completed surveys, 278 (82.9%) were from The Fisher College of Business or FCOB and 57 (17.1%) were from The School of Allied Medical Professions or SAMP. The reason for the vast difference of respondents between the two schools simply reflects the larger class size of the FCOB. Prevalence of dietary/herbal supplement use among pre-major college students in health and non health colleges was 37.6% (n=126) Refer to figure 1. Of the 126 reported dietary/herbal supplement users, 29.4% (n=37) took at least one dietary supplement only, whereas, 70.6% (n=89) took at least one herbal supplement. Refer to figure 2.

No significant difference in the prevalence of use of dietary/herbal supplements was found among health and non health colleges (p>0.96). 27.7% of FCOB and 17.7% of SAMP students are taking at least one dietary/herbal supplement.

<table>
<thead>
<tr>
<th>Prevalence of Supplement Use Among FCOB and SAMP</th>
<th>n = 335</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary Supplement Users</td>
<td>38%</td>
</tr>
<tr>
<td>Non-Supplement Users</td>
<td>62%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prevalence of Herbal Supplement Use Among FCOB and SAMP</th>
<th>n = 126</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary Supplements Only</td>
<td>29%</td>
</tr>
<tr>
<td>Herbal Supplements</td>
<td>71%</td>
</tr>
</tbody>
</table>
There was a significant difference in gender and dietary/herbal supplement use (p <0.001). In fact, women were more likely to take ≤ one herbal supplement at 89.2% (n=66), when compared to men at 67.3% (n=35). However, men were more likely to take ≥ one herbal supplement at 32.7% when compared to women at 10.8%. Although the intent of this study was not to explore differences in gender, these results warrant further research in the area of dietary/herbal supplement use among college students.

Although not a significant difference, we also found that the men in SAMP 62.5% (5/8) were over two times as likely to be taking a dietary/herbal supplement as compared to those men in FCOB 29.3% (12/144). Refer to figure 3. However, no significant difference was found among women.

**Male Supplement Use According to College**

![Male Supplement Use According to College](image)

### 2) What are the perceptions, beliefs/knowledge of freshmen and sophomore health related pre-majors in the OSU- School of Allied Medical Professions when compared to those of non-health majors in the OSU Fisher College of Business?

The overall reasons for taking dietary/herbal supplements were to prevent illness or disease (32.8%), to make up for inadequate diet (32.8%), to increase physical/athletic performance (29.8%), to promote weight loss (32.1%), to improve energy (39.5%), to
relieve stress/enhance mood (8.9%), and other (14.2%). No significant difference for reasons of usage was found between FCOB and SAMP. Refer to figure 4.

Perceptions of Dietary/Herbal Supplement Use (Why Taking) Among FCOB and SAMP

Perceived efficacy of the supplement(s) was 83.2% of the 126 reported supplement users. There was no significant difference between FCOB (85.3%) and SAMP (76.7%). However, differences among the two schools and reported side effects were found. Overall, 17.6% of supplement users reported experiencing at least one side effect; FCOB (13.7%) and SAMP (30.0%).

The overall side effects of both FCOB and SAMP were reported as: lightheadedness (8.9%), nausea (7.5%), rapid heart rate (6.0%), other (5.2%) and vomiting (0.1 %). The side effects of dietary/herbal supplements reported among SAMP students were lightheadedness (12.9%), nausea (12.9%), rapid heart rate (9.7%), other (6.5%), and
vomiting (3.2%). The Fisher School of Business reported lightheadedness (7.8%), other (6.5%), nausea (5.8%), rapid heart rate (4.9%), and diarrhea (1.9%). Refer to figure 5.

Reported Side Effects With Dietary/Herbal Supplement Use Among FCOB and SAMP

![Figure 5](image)

3) **What are the sources of dietary/herbal supplement information among the freshmen and sophomore populations in the OSU-School of Allied Medical Professions when compared to those of the Fisher College of Business?**

The main source of information between FCOB and SAMP was family (44.8%). There was no significant difference between the two schools and sources of information on dietary/herbal supplements. SAMP students reported family (41.9%), health food store (29.0%), magazine, (29.0%) friends (258%), television (19.4%), internet (12.9%), and health care professional (1.0%). FCOB students reported sources of information as family (45.6%), friends (27.26%), health food store (24.3%), magazine and television, both, (10.7%), internet and health care professional, both, (7.8 %), and newspaper (1.0%). Refer to figure 6.
Sources of Information of Dietary/Herbal Supplement Use Among FCOB and SAMP

DISCUSSION:

This study has provided much needed insight into the popularity of supplements among college students. Many are taking supplements from family, friends, and health food store recommendations rather than from health care professionals. With an overall dietary/herbal supplement prevalence of 37.6%, education is needed for the freshmen and sophomore population regardless of major.

The significant difference in gender and herbal supplement use found over the course of this study raises some questions. Of particular interest is the higher prevalence of women taking one herbal supplement when compared to men. However, men have a higher prevalence of taking more than one dietary/herbal supplement when compared to...
women. Mixing of supplements could pose potential harmful side effects, especially if taken in large doses and with prescription medications. Why are men and women so different in their supplement usage?

The prevalence of males in SAMP (62.5%) taking one or more supplements was over double those in FCOB (29.3%). Are men in a health college more comfortable with taking supplements than those with a non health major? Investigation of various majors within the School of Allied Medical Professions and dietary/herbal supplement use as it relates to their field of study could potentially be an area of further study.

Overall, SAMP reported experiencing more side effects when compared to FCOB. Are health majors more aware or paranoid of possible side effects from taking dietary supplements compared to non-health majors?

Educating incoming college students, regardless of major, on safety, efficacy, and implications of dietary supplements needs to be established to promote better decision making of those newly decisive individuals such as freshmen and sophomore college students. Further investigation in this area of dietary/herbal supplements is desperately needed and is a definite avenue for future research.

REFERENCES:


9. Cashman LS, Burns JT, Otieno IM, Fung T. Massachusetts Registered Dietitians’ Knowledge, Attitudes, Opinions, Personal Use, and Recommendations to Clients About


