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Research

# Use of vitamins, minerals, herbs, and supplements among pharmacy and nursing students: Why educators should consider factors influencing students' choices

Maria D. Kostka-Rokosz, PharmD<sup>a,\*</sup>, Lana Dvorkin Camiel, PharmD<sup>a</sup>, Gary Tataronis, MS<sup>b</sup>, Michael Steinberg, PharmD<sup>c</sup>, William W. McCloskey, PharmD<sup>a</sup>

<sup>a</sup> Department of Pharmacy Practice, School of Pharmacy-Boston, MCPHS University, Boston, MA

<sup>b</sup> School of Arts and Sciences, MCPHS University, Boston, MA

<sup>c</sup> Department of Pharmacy Practice, School of Pharmacy-Worcester, MCPHS University, Worcester, MA

## Abstract

**Objectives:** To evaluate vitamin, mineral, herb, and supplement (VMHS) use in pharmacy and nursing students in the past year, as well as common conditions they are used to treat, adherence to the products, satisfaction with them, and information sources used to learn about VMHS.

**Methods:** A paper survey was administered to the university pharmacy and nursing students on three campuses in their last didactic year of study.

**Results:** A total of 342 pharmacy and 77 nursing students participated. A statistically significant difference between pharmacy and nursing students was observed in use of the following products: multivitamin/multimineral, fish oil, antioxidants, aloe, cranberry, ginseng, peppermint, and wheat/barley grass. Pharmacy students reported lower use of VMHS for respiratory conditions and urinary tract infections; were less satisfied with quality, safety, and efficacy; and were less likely to use VMHS on a regular basis compared to nursing students ( $p < 0.05$ ). Cost and lack of belief in efficacy were statistically significantly different between student groups as reasons for not using VMHS, while disease prevention and overall health/well-being were common reasons for both groups to use VMHS. Reliance upon sources, perceived value of information, and use of herbal databases to support use of VMHS were statistically significantly different between the two student groups.

**Conclusions:** Both pharmacy and nursing students use commonly available VMHS to improve their overall health and well-being. Pharmacy students are more skeptical, less adherent, and less open to VMHS use. Students' decision-making process is not fully developed and lacks in consistent utilization of appropriate resources. Students are unable to transfer classroom knowledge to making clinical decisions. Providing curricular opportunities on VMHS should be a consideration for nursing and pharmacy programs.

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**Keywords:** Health care students; Natural products; Influencing factors

## Introduction

The use of vitamins, minerals, herbs, and supplements (VMHS) is common in the United States. The data from the 2007–2010 National Health and Nutrition Examination

\* Corresponding author at: Maria D. Kostka-Rokosz, PharmD, Department of Pharmacy Practice, School of Pharmacy-Boston, MCPHS University, 179 Longwood Avenue, Boston, MA 02115.  
E-mail: [maria.kostka-rokosz@mcphs.edu](mailto:maria.kostka-rokosz@mcphs.edu)

Survey (NHANES) indicate that 49% of adults reported the use of a dietary supplement in the past 30 days.<sup>1</sup> A recent analysis of supplement use surveys conducted by the Council for Responsible Nutrition over the period of 2007–2011 suggests that the prevalence of use may actually be somewhat higher.<sup>2</sup> This analysis reported an overall prevalence of supplement use (defined as vitamins, minerals, herbals, botanicals, sports nutrition, or other specialty supplements) that ranged from 64% to 67% and a prevalence of regular supplement use that ranged from 48% to 53%. The study also reported that supplement use increases with age and is higher in women than men. Most respondents surveyed reported taking dietary supplements for overall health and wellness and to account for gaps in their diet.

Stacio et al.<sup>3</sup> suggest that there may be an increasing trend in self-medication among college students. Their survey of 201 students at a private southeastern university found that 74% of students reported the use of over-the-counter (OTC) medications, 70.6% use herbal or dietary supplements, and 61% use OTC and herbal/dietary supplements at the same time. However, there are limited data on VMHS use in health care professional students in the United States. An older survey of faculty from the six health science center schools in Florida indicated that alternative medicine use (including dietary supplements) by medical (52%) and pharmacy school faculty (56%) was similar to that in the general population.<sup>4</sup> Faculty in nursing (74%) and dentistry (65%) had a somewhat higher reported use. One longitudinal study of vitamin and mineral supplement use in medical students at 16 United States medical schools found that medical students may be more likely to take vitamin and mineral supplements than peers of the same age and that female students use them more frequently and consistently than males.<sup>5</sup> An Australian study of nursing, pharmacy, and biomedical students on the use of complementary therapies reported that 79.2% of biomedical students, 81.3% of nursing students, and 83.6% of pharmacy students use vitamins, minerals, and other supplements.<sup>6</sup> A recent survey of pharmacy students in one college of pharmacy reported that although few students (20.9%) currently use herbal supplements, most (86.1%) knew a friend or family member who used them.<sup>7</sup> Literature suggests that as health care students complete coursework in complementary and alternative medicine or vitamins, minerals, herbs, and supplements through various required (drug literature evaluation and self-care courses) and elective courses (professional electives), their attitudes, knowledge, and confidence level in this field are positively affected.<sup>8–16</sup>

Because of the lack of data on the use of VMHS among health care professional students in the US, particularly those studying to be pharmacists and nurses, a survey in pharmacy and nursing students was conducted to evaluate VMHS use, common indications, adherence, satisfaction, and information sources used to learn more about VMHS.

## Methods

Our university has several distinct campuses where a variety of health care degrees are offered. The Doctor of Pharmacy program at the Boston campus is a traditional (six years) first professional degree program. The pharmacy program on the Worcester campus is accelerated in its delivery (three years) and enrolls students who have extensive previous college experience. The Bachelor of Science in Nursing program also offers an accelerated delivery (32 months).

Both the pharmacy and nursing didactic and experiential curricula cover topics related to health promotion, self-care, wellness, and disease prevention. Although the university offers pharmacy elective courses and graduate programs in the area of natural products, this is currently not the case in the nursing program. The offices of Counseling and Student Services sponsor multiple wellness programs each semester and encourage student participation. Campus student body diversity also encourages exploration of different cultures, cuisines, and traditional healing practices. Consequently, students in both the degree programs are given the opportunity to learn more about VMHS through curricular and extracurricular activities.

Pharmacy and nursing students were recruited to participate in this research project at the end of the fall semester in their last didactic year. Students were solicited in core courses in which all students were enrolled in an effort to capture the greatest number of participants in each program. All participating students completed a 36-question paper survey comparing their reasons and use of VMHS, initial source of information and recommendation, as well as place of purchase.

Following the creation of the survey, it was piloted to a small number of pharmacy students on advanced experiential rotations with the investigators at the time. These students were asked to identify unclear questions, record the time it took to complete the survey, and make additional suggestions. This study was approved by the University's Institutional Review Board.

All statistical analyses were performed using NCSS 2007 version 07.1.21.<sup>17</sup> Pharmacy and nursing student group responses to each item on the survey questionnaire were summarized using percentages. Fisher's exact or Mann–Whitney *U* tests (as deemed appropriate) were used to examine whether significant differences existed between these student group responses to selected survey items. Results of these tests were considered statistically significant if the observed level of significance was  $p < 0.05$ .

## Results

A total of 499 pharmacy students (289 = first campus and 210 = second campus) and 83 nursing students were invited to participate; of them, 342 pharmacy students (first campus = 217 and second campus = 125) (70% response

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