



Contents lists available at ScienceDirect

Currents in Pharmacy Teaching and Learning

journal homepage: www.elsevier.com/locate/cptl

Experiences in Teaching and Learning

Assessing pharmacy student confidence to answer patient questions regarding herbal medicines and natural product drugs

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ARTICLE INFO

Keywords:

Pharmacy students
Herbal medicines
Natural product drugs
Confidence
Complementary alternative medicine

ABSTRACT

Background and purpose: To assess the change in confidence answering questions about herbal medicines and natural product drugs (HMNPD) in third year professional pharmacy students in an HMNPD course.

Educational activity and setting: A questionnaire was developed to query confidence in responding to patient questions, recommending specific products, and ability to retrieve resources regarding HMNPD. It was administered the first and last week of the semester; responses were evaluated using a Chi-squared test.

Findings: At baseline, 46 students (84%) were “very hesitant”, “hesitant”, or “neither hesitant nor confident” in responding to HMNPD questions; after the course, most students were “confident” or “very confident” (n=30, 54%) (p < .001). Confidence in finding reliable resources increased from the first week (29 students [40%] were “confident” or “very confident”) to the last week (51 students [91%] were “confident” or “very confident” [p < .001]). At baseline, five students (9%) were “confident” or “very confident” in ability to recommend a specific product; after the course, 26 students (46%) were “confident” or “very confident” (p < .001). Nine students (16%) felt “very confident” or “confident” in HMNPD safety/effectiveness at baseline; the same proportion felt this way at conclusion (p = .93). Four students (7%) were confident in HMNPD efficacy at baseline and nine (16%) felt the same way at the end (p = .12).

Discussion: Significant increases in student confidence answering patient questions, responding to disease-specific queries, and using appropriate resources were found. There was no difference in confidence in HMNPD safety/efficacy.

Summary: This study supported continued HMNPD education in the pharmacy program.

Background and purpose

Herbal medicines and natural product drugs (HMNPD), also known as supplements or complementary and alternative medicines, are well established as products that patients use and seek out. Natural products, such as herbs, vitamins, minerals, and probiotics

Abbreviations: HMNPD, Herbal medicines and natural product drugs; CAPE, Center for the Advancement of Pharmacy Education; NMCD, Natural Medicines Comprehensive Database

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<https://doi.org/10.1016/j.cptl.2018.02.005>

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comprise a large portion of HMNPD. In fact, Americans spend \$30 billion annually on the 55,000 commercially available dietary supplements.^{1,2}

Potential reasons patients use HMNPD include increased prescription medication and provider visit costs, a desire to treat ailments “naturally”, a distrust of the pharmaceutical industry, conventional treatment failure and persuasion from the media, friends, and coworkers suggesting HMNPD use.³

Despite increased popularity, there is concern regarding HMNPD use. The Council for Responsible Nutrition conducted a survey and found that nearly three quarters of Americans use dietary supplements. The same survey found over 80% of Americans were confident in the safety, quality, and efficacy of supplements, and 66% of those who use supplements anticipated an increase in their HMNPD use over the next year.⁴ The growing number of persons who use HMNPD is concerning due to the estimated 23,000 emergency department visits yearly due to dietary-supplement-related adverse events.⁵ Furthermore, HMNPD accounts for 20% of drug-induced liver injury.⁶ If consumers are not properly educated about use, the rates of adverse events due to dietary supplements may increase.

Pharmacists are the medication experts of the healthcare team; they are a trusted healthcare resource for patients and providers alike. Community pharmacies often sell dietary supplements, which positions pharmacists perfectly to advise patients about HMNPD products. In community pharmacy settings, pharmacists should be aware of available supplements, their side effects, and possible interactions with prescription medications. Hence, pharmacists should be formally educated regarding supplements.

Although HMNPD use is popular throughout the United States, its use is disproportionately popular in the state of Utah. According to *The Salt Lake Tribune*, the dietary supplement industry in Utah sells approximately seven billion dollars of products annually.⁷ This accounts for nearly one quarter of HMNPD sales in the United States each year.^{2,7} Furthermore, Utah has been referred to as the “hub of direct selling in America” and is home to nine major multilevel marketing companies that sell nutritional products and dietary supplements.⁷ A survey of geriatrics and rheumatology clinic patients corroborated the popularity since it reported that two thirds of patients were using some type of dietary supplement.⁸

Thus the importance of training University of Utah College of Pharmacy students has been addressed in a course titled “Herbal Medicines and Natural Product Drugs,” that was designed to equip students to provide HMNPD education in their community. HMNPD education also strengthens the University of Utah College of Pharmacy’s commitment to the 2013 Center for the Advancement of Pharmacy Education (CAPE) Outcomes. Training students to educate individuals about enhancing health and wellness initiatives accomplished CAPE Outcome 2.3 (Health and Wellness). Outcome 3.5 (Cultural Sensitivity) was achieved by preparing students to recognize alternative therapies and to provide evidence-based recommendations in a culturally sensitive fashion.⁹

HMNPD education is not novel within pharmacy curricula. The University of Utah College of Pharmacy has included HMNPD in the core curriculum for the past decade. HMNPD knowledge has been assessed in the published literature utilizing various methods. Other researchers have also studied student perspectives on knowledge about herbal supplement use.¹⁰

However, to the authors’ knowledge, this is the first time HMNPD was assessed with a student confidence component, including student ability to answer patient questions, recommend products, find reputable resources, and analyze product safety and efficacy. Because of such widespread use, the authors felt it was important to not only provide future pharmacists with knowledge regarding HMNPD, but to assess confidence in providing patient education and answering questions. This study is also novel in that it determined students’ personal supplement use at the beginning and end of the course, and their confidence in the product achieving intended effect. Due to widespread availability and use in Utah, the authors felt it would provide a unique perspective to assess baseline and end of course use of HMNPD by students. The student population assessed was unique because all students held positions as pharmacy interns and reported frequent HMNPD-related questions at their workplace. Therefore, their perspectives on confidence were likely influenced by their firsthand knowledge of pharmacy practice.

The authors hypothesized that taking the course would improve confidence in responding to patient questions, recommending medical condition specific products, and retrieving evidence-based resources regarding HMNPD. The authors also hypothesized student opinion would change regarding HMNPD safety and efficacy post-course. Changes in student opinion about HMNPD were expected with increased knowledge about specific products in concordance with perceived practice needs.

The objective of this study was to assess change in student confidence relating to HMNPD from the beginning to the end of the HMNPD course regarding 1) responding to patient questions, 2) recommending medical condition specific products, and 3) retrieving evidence-based resources regarding HMNPD therapy.

Other objectives included assessing student opinion regarding HMNPD safety and efficacy and utility of course content. Although not a primary objective, the authors believed it would be useful to assess students’ personal supplement use at the beginning and end of the course to determine whether this might change and whether there was any potential impact on safety and efficacy beliefs. A questionnaire was administered to students preceding the first topic presentation and after the last topic presentation (Table 1) to assess study objectives.

Educational activity and setting

HMNPD course description

The required two credit hour HMNPD course occurs spring semester of the third professional year, the semester directly preceding clinical clerkships. The HMNPD course is designed to complement professional therapeutics courses to provide the support for students to obtain a well-rounded knowledge and practice by enhancing their ability to assess and counsel patients about HMNPD.

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