

Natural Health Products: Practices, Perceptions and Training Needs of Registered Dietitians

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Abstract

Canadians have access to thousands of authorized natural health products (NHPs) and are also surrounded by many unauthorized NHPs, which may place them at risk of adverse effects. Consumers expect health professionals, including nutritionists, to be a source of information on NHPs. Current training programs suggest that registered dietitians may have little knowledge about NHPs. The *Ordre professionnel des diététistes du Québec* (OPDQ) sent an electronic survey to registered dietitians who are members of the OPDQ to document their use, referral habits and sources of information for NHPs. The survey also explored respondents' perceptions of professional roles regarding NHPs as well as their perceptions of the effectiveness of specific NHPs. It measured their need for training on specific NHPs and on the health conditions that may be improved by NHPs. Data were analyzed with SPSS, through which descriptive statistics were obtained. A qualitative analysis was performed on the open-ended questions from the survey. A total of 295 questionnaires were analyzed. Among nutritionists, 93% have received requests for information about NHPs, 91% use or have used NHPs and 94% have recommended them. Also, 95% need training on NHPs and for various health considerations. Overall, they have a positive perception of their roles regarding this subject, with 77% indicating that the nutritionist should be a reliable source of information for NHPs. The major findings of our study are that the roles of Quebec nutritionists relating to NHPs are not clearly defined. Nutritionists need training on NHPs to provide sound nutritional advice for NHP users and, therefore, should develop a new area of nutritional practice.

Keywords: natural health product, supplement, alternative medicine, training, perception, nutritionist

1. Introduction

Growth has been impressive in the natural health product (NHP) market. Canadians have access to 55,000 authorized NHPs (Health Canada, 2013). In the United States, Americans spend \$30.2 billion on complementary health approaches, most of which are NHPs. According to the National Center of Health Statistics, Americans are not the only ones doing this—the self-care movement is worldwide (Food and Drug Administration, 2014; National Institutes of Health, 2016).

Health Canada defines NHPs as naturally occurring substances that are used to restore or maintain good health. They are made from plants, animals, microorganisms or marine sources. They come in a wide variety of forms including tablets, capsules, tinctures, solutions, creams, ointments and drops. Often referred to as complementary or alternative medicines (CAMs), they include vitamins and minerals, herbal remedies, homeopathic medicines, traditional medicines (e.g., Chinese and East Indian medicines), probiotics, amino acids and essential fatty acids (Health Canada, 2016).

In 2010, over 70% of Canadians consumed an NHP, motivated mainly by health maintenance (85%), disease prevention (79%) and immune system strengthening (36%). To be legally sold in Canada, NHPs must be licensed and the Canadian sites that manufacture, package, label and import them must have site licenses (Health Canada, 2016). To obtain a license, labeling and packaging requirements must be met, good manufacturing practices must be followed, and proper safety and efficacy evidence must be provided to Health Canada. Still, Canadian consumers may choose, consciously or not, to use NHPs that have not been reviewed or authorized by Health Canada. The many differences in how countries regulate NHPs can put NHP consumers at risk. Interestingly, Health Canada states that a percentage of Canadians who use NHPs report adverse reactions after using NHPs. Those risks may be related to manufacturing problems, unproven claims leading consumers to use NHPs for

serious conditions or to delay proper treatment, lack of information to make an informed choice, interaction with prescription drugs or other NHPs, or allergic reactions (Health Canada, 2016).

For these reasons, the Canadian Paediatric Society (Canadian Paediatric Society, 2005), Health Canada and the *Collège des Médecins du Québec* (Goulet, 2006) advise Canadians to refer to a health professional before using any NHPs. However, most recommendations for NHP usage in Canada are still made by a friend or a family member (Goulet & Bell, 2005).

In the United States, the Academy of Nutrition and Dietetics has raised several concerns regarding the role of dietitian professionals with respect to complementary and alternative medicine and the skills recommended for dietetics professionals in the area of dietary supplements. These skills included knowing the risks and benefits for the most commonly used supplements, documenting clients use and clinical response to dietetic supplements and the ability to recommend NHP use if necessary (Decker-Touger & Thomson, 2003).

Although practices, attitudes and learning needs of nutritionists have been reported in North America (Gardiner et al.; Pomazak, 2009), no data are specific to registered dietitians (RDs) in Quebec. Moreover, in Quebec, professional training on CAMs is limited, suggesting the importance of emphasizing a continuum of professional training. Currently, RD professional roles are guided by a Code of Ethics that requires them to abstain from expressing opinions or giving nutritional advice without having full knowledge of the facts.

The current study aims to portray the practices, attitudes and training needs among RDs who are members of the OPDQ on the topic of NHPs. The objectives of the study are to document dietitians' use, referral habits and sources of information on NHPs. With regard to attitude, the study aims to document RD perceptions of their professional roles and on other professionals' roles regarding NHPs, as well as their perception of the effectiveness of specific NHPs. Finally, it aims to report on RD needs for training on specific NHPs and on health conditions that may benefit from NHP usage.

2. Materials and Methods

2.1 Instrument

Data were collected via a self-administered online questionnaire, available in French and English, integrated into Fluid Survey (<http://fluidsurveys.com/>), and pre-tested with seven RDs to assess clarity and the amount of time it took to complete. The data presented herein are specific to practices, attitudes and RD training needs.

Before the questionnaire component, a brief description of NHPs was provided so that respondents could properly identify NHPs in a Canadian context. This definition differentiated between NHPs, functional foods, nutraceuticals, medicines and food.

With regard to practices, respondents were asked whether they received questions about the NHPs in their professional practice. They were also asked about the NHPs they had recommended in the past year (choice of eight and open answer) and the health considerations for which the NHPs were recommended (choice of ten and open answer). To document their sources of information, the authors suggested ten possible answers and requested an example of the consulted sources.

With regard to attitudes, respondents were asked to identify two out of eight specialists whom they believed should be credible sources of information on NHPs. Respondents were also asked to select the role of nutritionists on NHPs among 12 options drawn from the Academy of Nutrition and Dietetics (Thomson et al., 2002). Their levels of agreement on the effectiveness of different NHPs (e.g., Omega-3 for cardiovascular disease) and on specific professional responsibilities (e.g., the importance of questioning the client about NHPs) were documented with eight statements, measured with a five-point Likert scale, and the option to select *do not know*.

Their needs for training on NHPs (eight choices), health conditions and NHP usage (11 choices and an open question) were collected.

Respondent profiles were created with information about training, areas of practice, professional affiliation and personal use of NHPs (choice of eight, plus *never consume*).

2.2 Recruitment

In 2014, the OPDQ sent all its registered dietitians (n=2,898) an email inviting them to take the survey. Respondents had one month to complete the questionnaire and a reminder was sent halfway to the deadline.

2.3 Statistical Analysis

Data were transferred from Fluid Survey to an Excel spreadsheet (2007, Microsoft Inc. version 14.0. Redmond,

WA) and imported into SPSS (version 19.0, SPSS Inc. Chicago, IL). Descriptive statistics were formulated. Data from open questions were compiled, synthesized by the first author and validated by the second author.

2.4 Ethical Approval

This project was approved by the Ethics Committee of Health Research of the Université de Montréal.

3. Results

3.1 Respondent Characteristics

In total, 295 completed questionnaires were obtained, representing 10.2% of OPDQ members. Characteristics of the respondents are presented in Table 1.

Table 1. Characteristics of RDs who participated in the Quebec consultation on NHPs (n=295)

	n	%
Sources of training on NHPs		
During undergraduate degree in nutrition	181	61.4%
Informal training	134	45.4%
Training obtained from continuum professional education	49	16.6%
Training offered at workplace	47	15.9%
None	24	8.1%
University attended		
Laval University, Quebec	115	39.0%
University of Montreal, Quebec	112	38.0%
McGill University, Quebec	35	11.9%
Other Canadian University	12	4.1%
American University	2	0.7%
Graduate studies in nutrition		
No	203	68.8%
Yes	73	24.7%
Area of practice		
Clinical nutrition	217	73.6%
Public nutrition/community	79	26.8%
Research	23	7.8%
Education	20	6.8%
Food service management	17	5.8%
Communications, public relations and marketing	11	3.7%
Food industry	6	2.0%
Other	6	2.0%
Pharmaceutical industry	3	1.0%
Naturopathic association affiliation		
No	260	88.1%
Yes	16	5.4%
Personal use of NHPs		
Vitamins	221	74.9%
Probiotics	181	61.4%
Minerals	140	47.5%
Fatty acid supplements	79	26.8%
Herbal remedies	54	18.3%
Homeopathic medicines	39	13.2%
Never consumed NHPs	26	8.8%
Amino acid supplements	14	4.7%
Traditional medicines	10	3.4%

3.2 Professional Practices

A total of 93% of RDs reported receiving questions on NHPs. The main NHPs about which they had made recommendations in the past year were vitamin supplements (87%), probiotics (78%) and mineral supplements (67%). The health concerns for which respondents recommended the use of NHPs were aging (46%), pregnancy

(41%) and cardiovascular diseases (30%). Among the 254 responses specifying other health problems, one third were about gastrointestinal disorders, such as ulcerative colitis, irritable bowel syndrome, clostridium difficile infections, constipation, diarrhea and celiac disease.

The main sources of information used by nutritionists with regard to NHPs are specific websites (n=238) (e.g., Health Canada Natural and Non-prescription Health Products Directorate, Passeport Santé at www.passeportsante.net, Extenso, at www.extenso.org, and NHP manufacturers), Internet search engines (n=59) (e.g., Pubmed and Google), manufacturer brochures (n= 86) (e.g, Bio-K+, Probaclac and Centrum), reference materials (n= 70) (e.g., Dietary Reference Intakes published by Health Canada, at <http://www.hc-sc.gc.ca/fn-an/nutrition/reference/table/index-eng.php>), healthcare specialists (n=105) (e.g., pharmacists, nutritionists and doctors), science books (n=11) (e.g., on food and cancer or on interactions between drugs, nutrients and natural health products), scientific articles (n=68), training materials (n=73), newsletters from professional associations (n=34) and public interest articles (n=28).

3.3 Attitudes towards responsibilities and NHP effectiveness

According to RD, the two categories of specialists who should be a source of credible information on NHPs are pharmacists (85%) and nutritionists (77%). Among the other categories, physicians (16%), naturopaths (8%), homeopaths (1%) and osteopaths (1%) were proposed.

With regard to health professionals, a majority of RDs totally agreed that it is important to document client use of NHPs (78%), that all health professionals should acquire basic knowledge about NHPs (72%) and that health professionals should know the interactions, conditions of use, dosage, effectiveness and safety of NHPs in order to properly advise on using them (82%). Responses for each of the 12 statements on RD responsibilities with regard to NHPs are shown in Table 2.

Table 2. Respondents' perceived role of nutritionists with regard to NHPs (n=295)

	n	%
Educate the clients to consider "food first" before using an NHP	250	84.7
Assess the benefits NHPs could bring depending on the context and health condition of the consumer	210	71.2
Ensure collaboration with the interdisciplinary team about NHPs	193	65.4
Assess the safety of NHPs and the possible interaction with drugs, other NHPs and foods	163	55.3
Recommend the use of NHPs to nutritionally vulnerable consumers	159	53.9
Educate the public about NHPs and their regulation, labels and allegations	126	42.7
Identify the prevalence and reason for the use of NHPs	97	32.9
Critique, evaluate and conduct research on NHPs	89	30.2
Document the use of NHPs and client clinical response to report side effects	88	29.8
Closely monitor the health of a client who consumes an NHP	77	26.1
Monitor the laws and ethical considerations on NHPs	54	18.3
Monitor the quality of the NHPs according to good manufacturing practices	25	8.5

Respondents' level of agreement about the effectiveness of specific NHPs is shown in Table 3.

Table 3. Quebec registered dietitians' agreement regarding the efficacy of specific NHPs (n=295)

	Totally disagreement % (n)	in Somewhat disagreement % (n)	in In agreement % (n)	Somewhat in agreement % (n)	Totally in agreement % (n)	I don't know % (n)
Regarding the efficacy of an omega-3 supplement for cardiovascular disease risk	0.3% (1)	6.1% (18)	19.0% (56)	47.1% (139)	17.3% (51)	4.4% (13)
Regarding the efficacy of a mineral supplement for hyperactivity	5.4% (16)	16.6% (49)	11.5% (34)	2.4% (7)	11.5% (34)	58.3% (172)
Regarding the efficacy of a folic acid supplement to ensure normal pregnancy	0.7% (2)	0.3% (1)	2.0% (6)	7.8% (23)	82.4% (n=243)	1.0% (3)
Regarding the efficacy of a vitamin D and calcium supplement to decrease the risk of osteoporosis	0.3% (1)	1.7% (5)	6.1% (18)	33.9% (100)	50.5% (149)	1.7% (5)
Regarding the placebo effect of NHPs	0.7% (2)	1.7% (2)	6.8% (20)	29.8% (88)	43.7% (129)	11.5% (34)

Note. Dietitians' agreement was measured about specific NHPs.

3.4 Training Needs

The NHPs on which respondents request training are probiotics (73%), vitamins (63%), minerals (62%), fatty acid supplements (62%), medicinal plants (60%), amino acid supplements (56%), traditional medicines including Chinese medicines (37%) and homeopathic medicines (5%). Five percent reported no training needs.

Respondents cited a need for training on health conditions or topics linked to the use of NHPs such as aging (62%), cardiovascular diseases (57%) and regulatory and approval procedures of NHPs (57%). Also, of the 68 responses indicating other health concerns, pediatrics and digestive system were the most frequently reported, at 19%.

4. Discussion

Respondent profiles mainly comprised nutritionists from clinical and public health nutrition scopes of practice, which are representative of RD practices in Quebec. The Hirschhorn et al. study (Hirschhorn et al., 2013), conducted among 475 RDs from Ontario, also concluded that professionals from these areas of practice are more likely to have experience with NHPs and that they reported a demand for expertise on this subject.

Although 61% indicated having been trained on NHPs during their undergraduate studies in nutrition, 45% have learned independently about NHPs, suggesting that academic curriculums are incomplete. However, this learning method suggests that nutritionists are self-directed in their own professional development.

We should note that the naturopathy association of which 16% are members is neither regulated nor recognized by the *Office des professions du Québec*. This raises some issues, as a major motivation for nutritionists to become a member of this association may be so that insurers will consider them eligible for reimbursement of naturopath services; these same insurers do not to reimburse nutritionist services.

Regarding personal use of NHPs, the study conducted by Dickinson et al. (n=300) among nutritionists who consumed NHPs revealed that they were more likely to have a positive attitude towards the contribution of NHPs to health, which led to them recommending the products (Dickinson et al., 2012). More precisely, 96% consumed an NHP on a regular basis and 97% said that they had previously recommended an NHP to a client. Our results were similar; 91% of our respondents reported that they consume or have consumed an NHP, and 94% reported having recommended an NHP in the past year.

The review of the information sources recommended by the Academy of Nutrition and Dietetics relating to NHPs revealed that none of our respondents reported having consulted these sources of information. We note that most of these sources of information on NHPs must be purchased by Canadian nutritionists, while most of the information sources cited by our respondents are free. Furthermore, the use of websites published by NHP manufacturing companies as a source of information is a major concern, since the quality and objectivity of that information is questionable.

With respect to their professional responsibilities, nutritionists need to be vigilant about NHP regulations and

approval mechanisms in and outside of Canada, considering the availability of unauthorized products for purchase. Lastly, nutritionists must also be aware of NHP interaction risks, either with medicines, other NHPs or food, in order to make safe recommendations (Government of Canada, 2012).

Respondents mentioned that pharmacists and nutritionists should be NHP specialists. According to *l'Ordre des pharmaciens du Québec*, pharmacists have several responsibilities regarding the use of medications but are not responsible for the quality and the safety of over-the-counter medicines, including NHPs, which falls under the jurisdiction of Health Canada (Ordre des Pharmaciens du Québec, 2011). RDs referring to pharmacists for NHPs information is supported by the findings of Cashman et al., in which American nutritionists (n=160) said that pharmacists as well as naturopaths, doctors of traditional medicine or herbalists should be the pillars of information for NHPs. Moreover, Canadian nutritionists from the Atlantic provinces (Mihalynuk & Whiting, 2013), also considered pharmacists as being the most qualified health professionals on NHPs because of their presence at the point of sale. Interestingly, these same respondents discussed the importance of the interdisciplinary role of professionals to support collaboration, communication and knowledge about NHPs so that the messages conveyed to the public are consistent. Accordingly, two thirds of the respondents from our survey indicated that one of the three main responsibilities of nutritionists regarding NHPs was to cooperate with interdisciplinary teams.

The expected roles of nutritionists offered in the survey were drawn from the Academy of Nutrition and Dietetics. Four of the roles were perceived as expected roles by fewer than 30% of nutritionists. The roles refer to recommending high-quality NHPs, providing information about their use and side effects, monitoring the health conditions of clients who consume NHPs, and staying abreast of the legislative and ethical consideration regarding NHPs. These results deserve more attention since these responsibilities are certainly related to client safety.

The scientific literature on health and NHPs effectiveness supports better training on NHP use for aging (Rietsema, 2014), cardiovascular diseases (AbuMweis et al., 2014), oncology (Tutanc et al., 2013), endocrinology (Harbilas et al.), nephrology (Brazier, 2008), obesity (Government of Canada, 2012), menopause (Crawford et al., 2013), pregnancy (Health Canada, 2009) and for athletes (Frechette, 2009). Among other subjects reported by nutritionists, the pediatric sector deserves our attention, especially with regard to the effectiveness of NHPs for treating hyperactivity, a practice with which 14% of our respondents expressed agreement. However, for most complementary and alternative treatments, such as the use of an essential fatty acid supplement among children with attention deficits, there is not enough evidence to support recommendations (Bader & Adesman, 2012). On the other hand, professionals should be able to properly advise the parents of children who choose complementary and alternative approaches.

Findings from this study should not be compared to results obtained from the United States, since the regulation of NHPs differs between Canada and the United States. In the United States, the Food and Drug Administration monitors the NHPs after consumption and therefore is more reactive to product safety. Thus, a health professional's country of origin certainly affects his or her attitudes and use of the NHPs.

5. Conclusions

This research documented the experiences of Quebec registered dietitians' in terms of personal uses, information searches, attitudes and training needs with regard to NHPs. Quebec nutritionists often receive questions about NHPs. They have a positive attitude toward these products and are aware of their role in this matter. In addition to personally using NHPs, they also recommend them to clients for various health conditions. However, they express a need for training on different NHPs and on several health considerations or topics related to NHPs. The study also highlights a need for reliable sources of information and for interdisciplinary work.

It would be useful to inform professionals about the best manufacturing processes of NHPs currently in use (Chiu et al., 2014), expose them to the practices of alternative medicine practitioners and suggest protocols for recommending the use of NHPs. With proper training, the nutritionist should be able to assume the responsibilities suggested in this article, including assessing the benefits associated with the use of NHPs, considering the safety concerns, potential interactions and product quality, documenting their use and effects and staying abreast of the various regulations. The central role that food plays should also be emphasized (Academy of Nutrition and Dietetics, 2009).

The Internet would certainly be an effective tool for ensuring a continuum of training. The Dietitians of Canada association currently provides online training courses on vitamin and mineral supplements. A study has shown that these courses increase participants' knowledge by about 10% (Dietitians of Canada, 2013). Thus, it could be of interest to develop online courses on different NHPs, including medicinal plants, probiotics, homeopathic

remedies, traditional remedies, amino acid supplements and essential fatty acids. These courses would enable RDs to offer better advice to the population and promote a complementary medicine approach with sound scientific evidence as a new area of nutritional practice.

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