



## Attitudes, beliefs and behaviours of Australia dietitians regarding dietary supplements: A cross-sectional survey



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### ABSTRACT

**Background:** The aim of this study was to investigate the attitudes, beliefs and behaviors of Australian dietitians regarding dietary supplements.

**Methods:** An online survey was disseminated through the mailing lists of multiple healthcare organizations. There were 231 Australian dietitians that replied to the online survey.

**Results:** The results indicate that Australian dietitians are interested in dietary supplements (65%); however, the results also indicate that Australian dietitians are tentative about integrating dietary supplements into their dietetic practice. Concerns regarding potential drug-nutrient/herbal interactions were reported as the primary barrier (67%) to utilizing dietary supplements as part of clinical practice. In addition, there was a strong interest in additional training in dietary supplements (79%).

**Conclusions:** In summary, Australian dietitians are interested in the use of dietary supplements; however, due to current barriers, few dietitians utilize dietary supplements as part of dietetic practice.

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## 1. Introduction

Complementary and Alternative Medicines (CAM) has been defined as “a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine” [1]. Dietary supplements can be classified as a type of CAM; however, while the use of certain types of CAM have demonstrated negligible benefits (e.g. homeopathy) [2], the use of dietary supplements for an extensive range of specific conditions including, but not limited to, hypertension, antibiotic-associated diarrhea, morning sickness, and in the critically ill have shown promise [3–7]. However, while there has been a significant amount of published literature investigating the attitudes and levels of knowledge of healthcare practitioners regarding CAM [8–12], dietary supplements alone have not been well explored.

The use of dietary herbal and vitamin and/mineral supplements to treat or prevent chronic diseases has gained considerable

interest both in academic research and amongst the general public. A large proportion of the population regularly use dietary supplements such as multivitamins and fish oil to help manage chronic conditions (e.g. arthritis, osteoporosis and heart health) [12,13]. Up to 72% of the general public within Australia consume dietary supplements and similar trends have been reported in other western counties [12,14,15]. Hence, the rapid uptake of supplements by the public has created the potential for misinformation, underestimation of side-effects, and drug-nutrient/herbal interactions.

There have been numerous reports that have highlighted the potential risks associated with inappropriate use of dietary supplements such as high dose green tea extracts and vitamin formulations [16]. In a study of 171 patients who were recently prescribed warfarin, 43% were found to be taking dietary supplements that have previously been reported to interact with anticoagulation therapy [17]. Toxicity associated with inappropriate use of dietary supplements has been documented in numerous case-reports [16,18,19]. There is also evidence that the long-term use of antioxidant supplements may increase the risk of cancer in specific populations [20]. These issues are compounded by reports suggesting that a significant percentage of certain patient populations are not discussing use of dietary supplements with their

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physician [21].

In Australia, dietitians are in a key position to advise patients and the general public about the evidence and limitations of specific dietary supplements [22]. However, there is currently no published literature that has investigated: the usage of dietary supplements in dietetic practice; barriers and enablers for their use; and the level of research interest, confidence and general knowledge regarding dietary supplement-related issues. Hence, the current study aims to elucidate existing gaps in knowledge and provide information on how dietary supplements are perceived and utilized in current Australian dietetic practice.

## 2. Methods

The study sample was limited to Australian dietitians who consult directly with patients and/or clients at the time of their participation in the study. Between August 2014 and March 2016, the survey was advertised online through the mailing lists and forums of the Dietitians Association of Australia, Dietitian Connection, the Multinational Association of Supportive Care and Cancer, and the Cancer Council Queensland. This study was approved by the Bond University Human Research Ethics Committee (RO1852).

The survey format was designed and face validated by three senior dietitians in positions relevant to the study aim. The survey included 27 items to assess participants' attitudes towards specific issues related to dietary supplements (e.g. efficacy, safety, and feasibility/current usage), respondents' perception of professional and public perceptions, barriers and enablers for use, level of individual confidence and knowledge regarding dietary supplements. A pilot study ( $n = 10$ ) was conducted to detect feasibility issues with the survey. These issues were addressed in a revised version of the survey. Complete as well as partial responses were included in the results.

This study used the following definition of a dietary supplement based on the definition provided by USA Federal Drug Administration: a vitamin, mineral, herb or other botanical, amino acid, or combination of those and/or other substances or constituents; intended to be ingested by mouth; and found in forms such as tablets, capsules, softgels, gelcaps, liquids, or powders [23]. The term "nutraceutical" is a related term and has been defined as "any substance that may be considered a food or part of a food and provides medical or health benefits, including the prevention and treatment of disease. Such products may range from isolated nutrients, dietary supplements and diets to genetically engineered "designer" foods, herbal products and processed foods such as cereals, soups and beverages." [24] As this term includes foods and diets, the term "dietary supplements" was selected for this study instead of nutraceuticals in order to improve the homogeneity of responses.

In order to limit responses to those that address the aims of this study, respondents were asked to disregard the following types of dietary supplements when completing the survey: high energy, high protein oral nutritional supplements used to treat malnutrition or undesired weight loss; and vitamin or mineral supplements used to correct diagnosed deficiencies caused by insufficient dietary intake in order to meet established recommended daily intakes.

## 3. Results

### 3.1. Demographic

There were 231 Australian dietitians that replied to the survey. The majority of respondents were aged less than 30 years old (48%

and working within the acute care setting (37%) for between two and five years (29%; Table 1).

### 3.2. Interest and perceived importance of dietary supplements

When asked if they were interested in dietary supplements, the majority (67%) said that they agreed or strongly agreed. When asked if dietary supplements were important to improving health outcomes, 46% agreed or strongly agreed while 36% said they were neutral.

### 3.3. Perceived efficacy and safety of dietary supplements

When asked if dietary supplements are safe, 60% stated that they were neutral with 17% and 23% saying they agreed and disagreed, respectively. When asked if they felt that dietary supplements are effective, similar trends were found with 51% stating they were neutral.

### 3.4. Personal use of dietary supplements

Respondents predominantly reported that they either never (35%) or occasionally (35%) consumed dietary supplements. A small proportion (4%) of respondents also indicated that they sold dietary supplements as part of their clinical practice.

### 3.5. Sources and perceived access to information

Fifty-two percent of respondents stated that they have access to reliable information regarding dietary supplements. When asked about where respondents access information regarding dietary supplements, over half of respondents listed the following sources: evidence-based databases (such as the Practice-based Evidence in Nutrition library; 89%), guidelines published by their professional body (68%), academic journals (62%), and their colleagues (54%). The majority of respondents said that in order for them to utilize a particular dietary supplement as part of their clinical practice, they required at least two to four favorable randomized controlled trials to be published.

**Table 1**  
Respondent demographics.

|                                    | Total   |
|------------------------------------|---------|
| Responses (n)                      | 231     |
| Age                                |         |
| <30                                | 110(48) |
| 31–40                              | 59(26)  |
| 41–50                              | 32(14)  |
| 51–60                              | 24(10)  |
| >61                                | 5(2)    |
| Years worked in current profession |         |
| 0–2                                | 36(16)  |
| 2–5                                | 68(29)  |
| 5–10                               | 52(22)  |
| 10–15                              | 28(12)  |
| 15–25                              | 25(11)  |
| >25                                | 22(10)  |
| Highest level of education         |         |
| Diploma                            | 5(2)    |
| Bachelor                           | 105(45) |
| Master's Degree                    | 112(48) |
| PhD                                | 9(5)    |
| Area of practice                   |         |
| Acute care                         | 83(37)  |
| Community                          | 65(29)  |
| Private Practice                   | 25(25)  |
| Industry                           | 3(1)    |
| Other                              | 19(8)   |

All values presented as n (column%).

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